DOCUMENT RESUME

ED 036 007 EC 004 845

AUTHOR JOHNS, ROE L., ED.; AND OTHERS
TITLE DIMENSIONS OF EDUCATIONAL NEED.
INSTITUTION NATIONAL EDUCATIONAL FINANCE PROJECT, GAINSVILLE, FLA.
SPONS AGENCY OFFICE OF EDUCATION (DHEW), WASHINGTON, D.C. BUREAU OF ELEMENTARY AND SECONDARY EDUCATION.
PUB DATE 69
NOTE 250P.

EDRS PRICE EDRS PRICE MF-$1.00 HC-$12.60
DESCRIPTORS ADULT EDUCATION, COMMUNITY COLLEGES, COMPENSATORY EDUCATION, DISADVANTAGED YOUTH, EARLY CHILDHOOD EDUCATION, *EDUCATIONAL FINANCE, *EDUCATIONAL NEEDS, *EDUCATIONAL PROGRAMS, ELEMENTARY EDUCATION, EXCEPTIONAL CHILD EDUCATION, EXTENDED SCHOOL YEAR, HANDICAPPED CHILDREN, JUNIOR COLLEGES, SECONDARY EDUCATION, VOCATIONAL EDUCATION

ABSTRACT

ROE L. JOHNS AND J. ALAN THOMAS SURVEY THE PROBLEM OF EDUCATIONAL NEED; AND KERN ALEXANDER CONSIDERS THE IMPLICATIONS OF THE DIMENSIONS OF EDUCATIONAL NEED FOR SCHOOL FINANCING. DIMENSIONS OF NEED IN THE FOLLOWING AREAS ARE DEFINED: EARLY CHILDHOOD AND BASIC ELEMENTARY AND SECONDARY EDUCATION, BY WILLIAM P. MCLURE; EDUCATIONAL PROGRAMS FOR EXCEPTIONAL CHILDREN, BY RICHARD A. ROSSMILLER, AND FOR THE CULTURALLY DEPRIVED, BY ARVID J. BURKE; VOCATIONAL EDUCATION, BY ERICK L. LINDMAN AND EDWIN L. KURTH; COMMUNITY JUNIOR COLLEGE EDUCATION, BY JAMES L. WATTENBARGER; AND ADULT AND CONTINUING EDUCATION, BY J. ALAN THOMAS AND WILLIAM S. GRIFFITH. IN ADDITION, ROE L. JOHNS DISCUSSES THE EXTENDED SCHOOL YEAR. AN ABSTRACT OF THE RESEARCH DESIGN FOR THE NATIONAL EDUCATIONAL FINANCE PROJECT IS APPENDED. (JD)

ED0 36007

Dimensions of Educational Need

Edited
by

Johns · Alexander · Rossmiller

NATIONAL EDUCATIONAL
FINANCE PROJECT

Volume 1

ED036007

Dimensions of Educational Need

Edited by

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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1969
NATIONAL EDUCATIONAL FINANCE PROJECT
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Financed by Funds Provided Under The Elementary and Secondary Education Act of 1965 (Public Law 89-10, Title V, Sec. 505) and Sponsoring States.

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Foreword

The National Educational Finance Project was instituted on June 10, 1968. This three year project is the first comprehensive study of school finance made since 1933. The ultimate objective of this project is to devise models of school finance which can be utilized by educators and legislators in evaluating and improving existing methods for financing education at the state and federal levels. The study will include data from all fifty states. Researchers from all over the nation, including experts from universities, state departments of education and other agencies will be involved in the study.

The National Educational Finance Project includes a study of the financing of education beginning with early childhood and continuing through junior college. Any rational study of school financing should begin with a study of educational needs. Therefore the Project staff decided to begin the study with an analysis of the dimensions or parameters of educational need in the following program areas: pre-first grade education, basic elementary and secondary education, compensatory education, exceptional children education, vocational and technical education, adult and continuing education, and community junior college education. Each of these programatic areas will be researched in depth by a satellite project under subcontract with NEFP. In each of these satellite projects the investigators will seek to: (1) identify or develop criteria for identifying the target population to be served, (2) develop accurate estimates of the number of persons in each target group, (3) indicate the nature of educational programs needed to meet the needs of each target group, i.e., how they differ from the regular or basic educational program and (4) determine the cost differentials implicit in such programs.

The first step to accomplish the above objectives was the preparation of papers which define, based on current knowledge, the parameters or dimensions of educational need in each of the program areas. The chapters in this book are made up of these papers representing the preliminary inquiry into the educational needs of the target population in each of the program areas.

Each of these chapters has been written by a school finance expert in cooperation with an instructional specialist in the program area. In each of those papers the literature concerning each program area has been reviewed to ascertain the extent to which data are available concerning target populations, educational programs and cost differentials and to identify additional research needed to be conducted in order to provide appropriate information for constructing models of school finance. In essence, Volume I presents the primary phase in developing the framework within which more extensive research will be conducted by the researchers for the National Education Finance Project.

Roe L. Johns
Kern Alexander

CHAPTER 1

Introduction

Roe L. Johns
and
J. Alan Thomas

For nations as for individuals, education is increasingly a means of survival and a source of power. Throughout most of the world, the educated man has largely replaced the physically strong, the wealthy, and the possessor of religious knowledge as the leader in society. The possession of education is increasingly linked to the ability to obtain employment and to be an intelligent consumer of the goods and services available in modern nations. The coming era of the 1970's has been described as the *Human Resources Era,*

> since the U. S. economy will find its essential vitality in those activities which are related to the unique resource of man — namely, his brain, which is the source of the creative, adaptive potentials required by our increasing technological sophistication. Contrasted with the Agricultural and Manufacturing Eras, when most workers were concerned primarily with transforming natural resources into useful products for their fellow man, activities which generally involved physical dexterity or strength, a rapidly increasing percentage of workers in the Human Resources Era will need a high level of educational achievement and mental development to meet job requirements.[1]

In such a society, it is inevitable that there is a growing awareness of the importance of the processes by which knowledge is produced and distributed. If inadequate resources are available for education, or if resources are used inefficiently, neither the society nor the individual will be able to attain full potential. If the distribution process is faulty, so that some individuals are favored while others are deprived of adequate educational opportunities, the resulting inequities in lifetime chances will plague a nation which was founded on the concept of equal opportunity.

The problem of providing an adequate and equitable educational system can be only partly solved by fiscal means. Sociologists and psychologists also have important contributions to make in the study of educational opportunity. While this study is concerned with the fiscal aspects of the problem, it cannot escape a concern for the political arena, because decisions concerning educational finance are based on a set of procedures for allocating resources among competing demands. These procedures are based on the exercise of power and influence rather than on an abstract weighing of costs and benefits.[2]

The evidence would indicate that decision makers at the various levels of government have, over the past half-century, been favorably disposed toward education. Not only has the amount of money available for education increased markedly, education has also increased its percentage of the GNP; from 1929 to 1965, the per cent of the national product devoted to education increased from 3.1 per cent to 6.6 per cent. However, there are constraints on the amount of resources available for education; competition between education and defense for the federal tax dollar is one visible example of the kinds of decisions which must be made by governmental and private decision makers.

The competition for resources is becoming increasingly severe; hence, this study is being conducted at a period in history when financial procedures are being questioned with respect to both their adequacy and their equity. Problems of resource adequacy arise since rising prices of goods and services used by educational systems, combined with inelastic revenue sources, lead to a situation of fiscal crisis which is repeated in most states and particularly in the larger cities of the nation.

Turning to the issues of equity, school finance authorities since the day of Cubberley have pointed out the inequalities associated with the procedures which are used for financing education.[3] The current awareness of the close relationship between educational opportunities and life chances has heightened this concern. Today, more than in the past, there is a belief that unequal opportunities in public education constitute a misuse of public funds. In fact, a strong case has been made for the position that large inequities in expenditure among school districts may, in less favored communities, constitute a deprivation of the basic constitutional rights of children and their parents.[4] Current litigation in several states attests to the desire of many people to relate constitutional guarantees to the provision of educational opportunity.

These problems are not entirely new. Throughout the nation's history, there has been a faith in the power of education to make possible a healthy economy, a democratic government, and a society in which the poor man's son could rise to a position of power and prestige. There is, however, more than ever before, an awareness of the problems involved in providing the fiscal, governmental, and educational machinery needed to implement these aspirations. This planning study attempts to suggest some technical aspects of a fiscal system which will permit education to make its full contribution toward the improvement of society and its members.

THE NATIONAL EDUCATIONAL FINANCE PROJECT

The National Educational Finance Project was initiated in June 1968, and is scheduled to be completed by July 1, 1971. It is funded principally by the United States Office of Education.[5] This project involves a nation-wide study of the financing of public education beginning with pre-first grade education, continuing through junior college and including adult and continuing education, but excluding the financing of education provided in four year colleges and universities.

The purposes of the project are:[6]

1. To project growth and anticipate changes in the types of educational programs which will be required for various target groups by 1980 in order to maximize chances for social and individual survival and growth.

2. To project the number of clientele for the educational programs that will be required by 1980.

3. To identify, measure and interpret deviations in educational needs among students, school districts, states and regions.

4. To relate variations in educational needs to the ability of the school district and state to finance appropriate educational programs.

5. To conceptualize various models of school finance and subject them to consequential analysis in order to identify the strengths and weaknesses of each model.

There are many reasons why a national study of school finance should be undertaken at this time. Following is a summary of some of those reasons:

> The National Educational Finance Project is being undertaken at a time when conventional approaches to financing education are under sharp attack. Legally and historically the fifty states bear primary responsibility for establishing and supporting a system of free public education for their citizens, although in many states much responsibility for the day-to-day operation of public schools has been delegated to local school districts and boards of education. Decentralization of the organization for education traditionally has been accompanied by a heavy reliance on local property taxes to support public elementary and secondary schools which, as Cubberley noted long ago, leads to great disparities in the quality of local education programs. Since the beginning of the present century authorities in school finance have attempted to conceptualize and implement school financing programs which will equalize educational opportunities for all children within a state and, at the same time, allocate equitably among the taxpayers of the state the taxes required to finance such programs. Today, however, state programs for financing public education increasingly are proving inadequate to meet the demands generated by the pressure of contemporary expectations for th schools. Among the factors contributing to this disarray are:
>
> 1. A growing awareness of the importance of providing an adequate education for all citizens; for example, population mobility makes the poorly educated child in any state a potential concern of citizens of all other states.

2. An increasing recognition of the need for differentiated educational programs for individuals and groups having special learning needs; for example, the emotionally maladjusted, culturally deprived or intellectually gifted learner.

3. A developing understanding of the importance of human capital to the well-being of a "brain-intensive" economic system.

4. A burgeoning use by the federal government of appropriations earmarked for educational programs, i.e., categorical aids, designed to accomplish specific purposes deemed to be in the national interest; e.g., programs to offset disadvantages resulting from cultural and/or economic deprivation.

5. A growing disparity between the revenue available to the schools from traditional sources and the amount of money needed to mount programs which satisfy societal demands; e.g., property taxes, the only major source of revenue available at the local school district level not only are reaching their limit in many school districts, but are not well related to the sources of income in an industriallized urban society.

6. An expanding population to be educated in the public schools resulting both from population growth and from the rapid extension of free public education at both ends of the traditional age range, i.e., to the early childhood and the post high school years.

7. A complex of population shifts which has produced a "flight to suburbia" from the cities by relatively affluent, middle class Americans and a movement to core cities by poorly educated and unskilled members of minority groups so that the cities are faced with a great influx of "high cost" citizens (in terms of their consumption of public services) at the same time that their revenue potentials are declining.

Indicative of current dissatisfaction with existing programs for financing education are suits which have been filed in Michigan, Illinois, California, Virginia and Texas claiming that the state support program in each of these states is unconstitutional in that it denies to pupils in various types of school districts equal protection under the law as guaranteed by the Fourteenth Amendment. Also noteworthy are the proposals advanced recently by such noted educators as Conant and Allen that the state abandon local taxes for education and assume complete

> responsibility for financing its public schools. It is against this background and within this context that the National Educational Finance Project has been launched.[7]

In order to engage a long range planning for the financing of education, it is necessary to make projections of the educational programs that will be provided in the future for different client groups. This is a precarious business, because such projections will be affected by many variables, some known and some unknown. Nevertheless, the attempt must be made because it would be futile to propose finance plans without basing them on the educational services which will be purchased.

It was decided that the National Educational Finance Project should use a broadly based PPBS (Planning, Programming, Budgeting System) approach to this problem. The PPBS approach to projecting the financial requirements of education for the future involves: (1) determining what the goals and purposes of education will likely be; (2) determining what client groups are likely to be served and estimating their numbers; (3) evaluating, in terms of their relative costs, alternative programs for attaining the goals and purposes agreed upon; and (4) projecting costs and benefits using alternative finance models based on varying assumptions concerning adequacy of support, sources of revenue and methods of distribution.

It will be extremely difficult to apply the PPBS approach rigorously to the National Educational Finance Project. Actually, the PPBS approach to educational planning should be regarded as a concept rather than as a methodology. For example, we do not have a "real time" and "computer on line" methodology for making immediate cost-benefit analyses in education because benefits of financial inputs often cannot finally be determined until many years later. It is generally agreed in the civilized world that education is necessary to reduce or eliminate poverty. But how many years will it take to eliminate or substantially reduce poverty after increased financial inputs are made in the ghettoes of our great cities, or in rural Appalachia, remains an open question.

Despite these difficulties, it is possible to use a broadly based PPBS concept in planning for the financing of education in the future. In approaching our projections, it seems safe to assume that the public will demand that some type of organized educational program be made available at public expense to all pupils in grades 1-12 enrolled in public schools. What is not entirely clear are the possible variations in the types of programs and the levels of quality which will be provided, and the relationship of these variations to program cost. But it is now becoming abundantly apparent that we cannot achieve the goal of educating "all the children of all the people" by providing a standard and uniform program for all pupils in grades 1-12. It is also becoming evident that there is no rational basis for beginning tax supported education at age 6 and ending it at age 18.

It is not possible for the research staff of the National Educational Finance Project to project probable educational expenditures in the future on the basis of statements of goals and purposes. It is necessary to advance from the planning stage, where goals are set and purposes are determined; to the stage of defining specific types of programs which hopefully can achieve the goals and purposes agreed upon. Utilization of this programmatic approach makes it possible to estimate with reasonable precision the probable costs of such educational programs, which can then be budgeted. Unfortunately, the problem still remains of identifying the characteristics of those programs which by 1980 are likely to be provided in addition to, or as supplements to, the regular programs provided for pupils in grades 1-12. The probable parameters of these additional and supplementary programs are even less clear than the parameters of the regular programs provided for typical pupils in grades 1-12.

Since it is not possible to do sound long range financial planning for education without taking into consideration the parameters of the educational programs that are likely to be provided and the clientele to be served, the decision was made to start the National Educational Finance Project with a preliminary examination of the parameters of educational need. A specialist in educational finance was selected to study each program area. He was assisted by an instructional expert in the educational program area assigned to him for study. Following is a list of the program areas for study:

1. The basic educational program provided for pupils in grades 1-12.
2. Educational programs for pre-first grade children.
3. Educational programs for exceptional children.

4. Programs for compensatory education of the culturally disadvantaged or culturally different.

5. Programs for vocational and technical education.

6. Programs for adult and continuing education.

7. Programs for junior college education.

This publication includes a chapter devoted to each of these program areas. A chapter on the extended school term is also included in this monograph because of its possible effect on school costs. It is not assumed that these chapters on the parameters of educational need include all of the significant variables which will affect school expenditures in the future. Neither is it assumed that these chapters present an exhaustive treatment of the educational developments to anticipate during the next ten years in each program area. However, the findings presented in these chapters, despite their limitations, do provide a rational basis for starting the projection of future educational expenditures. The researchers who wrote these chapters will continue their studies of the parameters of educational needs in each of these program areas during the second year of the project by examining the characteristics of exemplary programs in the area being studied and identifying the unit cost differentials associated with different types of programs. These additional studies are expected to produce new insights into the dimensions of school financing in the future.

EDUCATION AS AN INVESTMENT

In the past several years, a mode of thought which derives from economics has permeated the literature of educational finance. This new approach is seen in the use of such terminology as cost-effectiveness or cost-benefit analysis, program budgeting, or Program Planning and Budgeting Systems. One result of this orientation has been the development of systematic approaches which can be applied to examine the manner in which educational systems are financed.

Behind this literature is the concept, re-introduced into economics, that education can be described as an investment in human potentialities.[8] Individuals who have received more education tend to be more productive, in terms of their total contribution to a technologically oriented society. A nation which expands its educational system can expect rewards, in terms of a more vigorous economy, a sophisticated polity, and an environment in which those whose tastes are in the direction of the arts can reinforce each other.

In brief, the human capital concept regards private or social investments in education as having benefits as well as costs. Both benefits and costs accrue over a relatively long time period. The value of an investment in schooling can be estimated by comparing the "stream" of costs with the "stream" of benefits. If, through the methods used to make the comparison, benefits exceed costs, an investment is worth while. If costs are higher than benefits, the investment should not be undertaken. It is, of course, clear that benefits include monetary factors such as income, but also non-monetary factors shuch as the ability to relate to other people, or to enjoy art and literature.

Statistics show that, in monetary terms alone, education has been a good investment in the first part of the present century. Denison estimated that 23 per cent of the growth rate in total national product between 1929 and 1957 was due to the effects of education.[9] Other economists have shown that education has tended to be a good investment for individuals as well as for the nation as a whole. However, the value of an investment in education clearly depends upon a number of factors. For example, education obtained in one university may bring higher rewards than education obtained in another, certain levels of education have greater benefits than others, there are differences in the benefits associated with the various curricula, and one student may, because of his native endowments or home background, benefit more than another from a given amount and kind of education.

This concept has relevance for the basis upon which educational systems are financed. If, for example, the rate of return to a given amount and kind of education is high, there is an economic argument for increasing expenditures for that aspect of education. However, governmental structure may inhibit increases in the amount of money made available for education, or an inelastic revenue source may restrain the flow of funds. Under these conditions, expenditures may, from the point of view of total well-being, be inadequate.

The human investment approach to educational finance also has important implications for equity in treatment of the beneficiaries of education. The "human capital concept" suggests that an individual benefits throughout his lifetime from the effect of education. The student who receives a high-quality education is endowed with a flow of monetary and non-monetary benefits much superior to those received by a student whose education is inferior. Hence, inequities in educational benefits become economic inequities, and a society endows its youth unequally with the goods at its disposal when it creates a system of educational finance characterized by vastly differing expenditures among sub-units.

Money alone, however, does not determine the quality of educational services an individual receives. Equally important is the manner in which money is allocated, as well as the socio-psychological characteristics of the system. The types of cost-benefit analyses which are being developed are pointing toward possible ways of improving the efficiency of educational systems. This does not suggest that inexpensive ways of providing education will be found in this highly complex and technological society. It does, however, suggest that the resources which are available will need to be used as effectively as possible. Cost benefit analysis implies examining alternative possibilities of action in terms of the costs and benefits associated with each, making a choice among alternatives, and then implementing this choice.

This approach does, of course, have important implications for this planning study. Such a study must recognize the time dimensions involved in the formation of human capital. For this reason, it examines programs and costs over a relatively long time span. A planning study of this type must also recognize various alternatives which are available, and must provide methods of comparison among alternatives on the basis of costs and benefits of each. Some implications of this notion are now examined.

Example 1 — *The obsolescence of human capital* — Like physical capital, human skills and knowledge can become outdated, and private and governmental procedures must be developed to combat skill obsolescence. This poses a number of questions, which may be phrased in cost-benefit terms. What, for example, is the proper role of formal education in contrast to post graduation learning experiences? In a rapidly changing society, it seems appropriate to develop an educational system which assumes that there will be a need for formal programs of continuing education. What are the relative roles of the employer and employee in on-the-job training? Gary Becker has an elegant exposition of this problem.[10] Should secondary school vocational education concentrate on general or specific skill training?

Example 2 — *Resource allocation among educational levels* In some context, formal or informal, governmental decisions are made with respect to the allocation of resources among primary, secondary, and higher educational levels. The manner in which these allocations are made has clear implications for the outcomes of education. Furthermore, social science has some suggestions as to the educational implications of these decisions.[11] Formal cost-benefit analysis would at least force decision-makers to develop a rationale for the manner in which resources are allocated.

Example 3 — *Resource allocation among client groups* — This study identifies certain client groups, such as handicapped or gifted children, and children whose home backgrounds are not conducive to success in school. Given a fixed amount of resources (at a given point in time), educational decision makers must determine whether there should be a differential allocation of resources among sub-populations. Powerful lobby groups may influence this allocation; as one example, special appropriations for the education of handicapped children have come about in this way. Alternatively, cost benefit analysis may at least provide some guidelines with respect to desirable resource allocation for, say, teaching reading to children of low income families.

Example 4 — *Resource allocation among curricula* — Curricular differentiation may or may not correspond to some clearly defined classification of client groups. Nevertheless, the justification for curricula often depends on the benefits assumed to be derived from providing certain kinds of training to specific groups of students. An ideal example of this type of analysis lies in the area of vocational education. In this instance, cost-benefit analysis is appropriate, since vocational education is aimed at preparing individuals for gainful employment. Some useful beginnings have been made in conducting research in this area.

These examples provide some illustrations of the usefulness of cost-benefit analysis in educational decision-making. However, decisions are not made in a vacuum. The governmental structure by which educational decisions are made helps to determine the nature of these decisions, and is hence of extreme importance in planning.

NEEDS, DEMANDS, AND GOVERNMENTAL STRUCTURE

A planning study in educational finance must remain in the context of the governmental structure in which decisions are made and resources allocated. The complexity of the federal system for educational government in the United States has profound effects on educational finance.

Governmental decisions are made concerning the kinds of services which shall be provided, and the manner in which these services shall be supported. Both these kinds of decisions are made at each of the three levels of government. Also, both kinds of decisions are important to this study.

One of the tasks of this study is to project levels of educational service into the future. Upon what rationale can such projections be made? One approach would be to consider government as identifying and meeting the demands of its citizens. If this approach is taken, demand schedules could be projected from past experience, and used as the basis for determining fiscal requirements. This approach is often used in planning for new higher education facilities. Enrollment trends are used as a basis for projecting future demands, and decisions are made accordingly.

One problem with this approach lies in the unequal nature of community aspirations with respect to education. In general, the parents of upper middle class families tend to have higher expectations than the parents of lower class families with respect to the education of their children. If aspirations alone are used as a basis for providing educational services, the result will be the perpetuation of past inequalities. It is therefore often suggested that the role of government is to help raise aspirations, as well as to reflect aspirations which already exist. Nevertheless, since each generation seems to want more education for its youth than the preceding generation, a demand-based projection would call for increasing the levels of educational services from each time period to the next.

To provide educational services entirely on the basis of consumer demand would imply an approach to the provision of educaion which is analogous to the provision of goods and services in the private sector. It also implies that education may well be provided in the private as well as the public sectors, and indeed, it can be argued that public production of education may be neither necessary nor desirable.[13] The opposing point of view is that there is an essential public or social ingredient in education, since the education of one person's child affects the well being of his neighbors. In a highly inter-dependent society, some public or governmental intervention in the provision of education becomes essential.

Let us consider some examples of the latter point of view. In the first place, it has long been accepted that the education in the public school of children from a variety of backgrounds leads to a diminishing of social and racial barriers. In the second place, it is generally agreed that in a democratic society, the education of the under-privileged classes is essential for the maintenance of a government based on the will of the majority. In the third place, the preservation and acceleration of a high rate of economic growth depends upon increasing both the quality and the quantity of educational services.

If these points of view are accepted the support of schools and colleges is not necessarily directly linked to the concept of "demand for educational services." Rather, we can refer to a concept of educational "needs" as perceived by those responsible for the provision of services. This concept will form the basis of the projections used in this study. It must be remembered that these are subjectively determined estimates, based on the best judgments of those participating in this study.

As noted above, governmental structure and educational finance are closely interrelated. In this federal system of government, judgments are made about educational need at all three levels of government. On the basis of these judgments, each governmental level makes decisions about the provision of services, and about the allocation of financial resources.

Local Governments and Educational Finance

The local community, in some ways, is in a preferred position with respect to implementing the educational aspirations of its citizens. Where aspirations are at a high level, superior programs are implemented, and the community will, unless constrained by an inability to gain access to resources, provide financial support for its programs. Public analysis of costs and benefits may be carried out when tax or bond elections are put to a vote. Furthermore, individual citizens may make choices about the "bundle" of governmental services (including education) which they prefer, in their initial choice of a community in which to live.

Problems arise, of course, when various communities have widely differing aspiration levels. Furthermore, if the fiscal capacity of local government is closely related to its own taxable wealth, communities may not be able to implement the realization of their aspirations for education. In each of these cases, a higher level of government has, in our federal system of government, both the opportunity and the responsibility to intervene.

The Role of the State

From a constitutional point of view, the state has plenary responsibility for providing education for its residents. Included in this responsibility is the notion that all monies spent for education (whether they are raised locally or at the state level) are state monies. Hence, in strict legal terms, the development of an adequate and equitable system of educational finance is a state responsibility.

However, as noted above, the comparison of costs and benefits associated with educational programs can probably best be done by local governments in cooperation with the state and the nation. In a diverse and heterogeneous state, a variety of kinds of benefits are sought, and decentralized decision making is best able to produce these benefits. States have therefore delegated to local governmental units many decisions concerning education, in accordance with the theory that this will help in the process of matching programs to aspirations.

Many benefits are not, however, received by the local community in which a student is educated. The high rate of mobility which characterizes the American population results in communities other than the one which provides the schooling reaping the benefits of a good education, or suffering the ills associated with an educational program which is inadequate. The ability of the state to take a broader view of costs and benefits, and to allocate resources accordingly, therefore points to a strong state role in educational planning. This role is particularly critical at the present time, in view of the importance being attached to an equitable distribution of the costs and benefits associated with education. Finally, even where local aspirations form the basis for the development of improved education, one function of state government is, in the opinion of school finance authorities, to devise ways to stimulate the raising of aspiration levels.

The Federal Role in Education

Despite the absence of a constitutional mandate, the federal government has always shown an interest in the concern for education. Throughout our history, education has been seen as the basis for morality and religion, as being necessary for national defense, and as providing the essential conditions for economic growth and prosperity.

Despite the reluctance of Congress to pass a bill providing general aid to education, much concern has been expressed for regional disparities in educational opportunity.[14] Mobility is again one cause for this concern. In a highly mobile, interdependent society, wide variations in educational quality and quantity indicate a failure to provide equally for the welfare of citizens. Furthermore, it is not likely that an optimal level of expenditures will be reached when those levels of government which meet the costs of education will not receive the full benefits.

While equalizing educational opportunities appears to call for federal aid which is general and equalizing, the tendency has been for the federal government to provide specific, categorical kinds of aid. National needs have been identified, and programs designed to meet these needs have been designed. These programs have been very influential, as in the case of establishment of the land grant colleges and in promoting vocational education, in furthering certain kinds of goals. One question concerning this study is whether these kinds of programs should persist into the future, or whether more general types of support will be preferred, in terms of sound educational planning.

SUMMARY

It is apparent that the staff of the National Educational Finance Project faces a formidable task in making a comprehensive study of educational finance and projecting the financial needs of education by 1980. As has been pointed out in this chapter, this involves an appraisal of prospective changes in society by 1980 which will affect educational needs,[15] an analysis of the effect of educational financing on the economy, an appraisal of the political processes involved in educational decision-making, and projection of educational needs by 1980 and the development of alternative models for financing those needs. This first publication of the National Educational Finance Project is devoted to a preliminary projection of educational needs to 1980.

FOOTNOTES

1. Battelle Memorial Institute, *Michigan Manpower Study*. Columbus, Ohio: The Institute, 1966, pp. S-2, S-3.

2. Louis De Alessi, ‘Implictions of Property Rights for Government Investment Choices.” *American Economic Review* LIX, No. 1 (March, 1969) pp. 13-24.

3. Ellwood P. Cubberley, *School Funds and Their Apportionment*, New York: Columbia University Press, 1905. Also, H. Thomas James, *School Revenue Systems in Five States*. Stanford: School of Education, Stanford University, 1961.

4. Arthur Wise, *Rich Schools, Poor Schools.* Chicago: University of Chicago Press, 1968.

5. All of the financial support is being provided by the United States Office of Education except for the satellite project on the financing of the school food service program which is funded by the U. S. Department of Agriculture.

6. Adapted from: R. L. Johns, Kern Alexander and Richard Rossmiller, “National Educational Finance Project”, a paper presented to the National Conference on School Finance sponsored by the Committee on Educational Finance of the National Education Association, New Orleans, March, 1969. A revision of this paper is presented in the appendix.

7. *Ibid*, pp. 1-3.

8. Mary Jean Bowman, “The Human Investment Revolution in Economic Thought,” *Sociology of Education*, Vol. 39, 202 (Spring, 1966), pp. 111-137.

9. Edward F. Denison, *The Sources of Economic Growth in the United States*. New York: Committee for Economic Development, 1962, p. 73.

10. Gary S. Becker, *Human Capital*, New York: Columbia University Press, 1964.

11. Benjamin S. Bloom, *Stability and Change in Human Characteristics.* New York: Wiley, 1962.

12. See for example, articles in the 1968 Supplement on "Vocational Education," *Journal of Human Resources*, Vol. III, 1968.

13. For an eloquent exposition of this point of view, see Milton Friedman, "The Role of Government in Education," Chapter VI of *Capitalism and Freedom*, Chicago: University of Chicago Press, 1962.

14. Frank K. Munger and Richard F. Fenno, Jr. *National Politics and Federal Aid to Education.* Syracuse: Syracuse University Press, 1962.

15. Edgar L. Morphet, Charles O. Ryan, Editors, "Prospective Changes in Society by 1980", *Designing Education for the Future*, Citation Press, 1232 Lincoln Street, Denver, Colorado, July, 1966.

CHAPTER 2

Dimensions of Need for Early Childhood and Basic Elementary and Secondary Education

WILLIAM P. MCLURE*

Men in every generation attempt to redefine the basic and special character of education. They evaluate the purposes and objectives, programs, clientele to be served, alternatives, outcomes, and costs. Regardless of the scope of analysis, the depth of knowledge, and the skills of evaluation of persons making judgment there is a general concern for quality and for satisfactory outcomes. Some of the most common expressions are those relating to economy and efficiency.

But the basic motivation of social concern for education goes much deeper. Education is one of the institutions vital for the preservation and growth of a society. There is a constant interplay of the needs of the individual and of the society in which he is a part. The needs of society, actual and potential, for its preservation, growth and fulfillment are related to the needs of its citizens as individuals. Hence, the ultimate question which must be answered anew in every generation: Is education relevant to the needs of the individual and the society?

Each generation develops a self-image of its ability to cope with its life—its contemporary needs, emerging needs, problems, and creative opportunities. Perhaps the present generation possesses greater confidence than any other generation in the potential power it has to develop and utilize formal education as an institutional means of social development and well-being.

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* The writer wishes to acknowledge the assistance of Dr. Bernard Spodek, Professor of Elementary Education, University of Illinois, Urbana, who reviewed the draft of this Chapter and made valuable suggestions.

This paper will explore some of the critical areas of social need in its evaluation of education. Among these are: implications of population growth; pattern of urbanization, including reconstruction of existing ghettos; mobility of population; nature of expertise required in the work-a-day world; changes in institutional structures in both public and private sectors; impact of technological developments in all areas of life; changing occupational structure; and patterns of social behavior.

Part I

EARLY CHILDHOOD EDUCATION

Early childhood education is an area of special contemporary interest. Many educators, scientists, leaders in government, and citizens in general believe that this nation must re-examine its commitment to the formal education of children below six years of age. There is much evidence to suggest that this belief may be sufficiently potent and widespread to lead to more rational planning and action by government and other institutions than this nation has had in the past.

Why does this observation appear to be reasonable? First of all, in recent decades there has been a substantial increase in the amount of dependable knowledge which exists about the growth and development of individuals during the early years of their lives. Secondly, many observers have become acutely aware of the slowness with which society utilizes dependable knowledge in its own behalf in the field of education. Many examples of this second observation could be documented in the literature. For example, Mort and Cornell wrote of a study they conducted in the late 1930's:

> The past few years have been a period of great controversy in the field of education. The participants in these controversies are relatively few, yet the general impression is that the schools, by and large, have adopted the

> practices that are debated . . . in the schools of Pennsylvania today and, the authors venture to say, in the schools of America, we find little manifestation of the practices subject to controversy. As a matter of fact, the succeeding waves of "reform" which have come and passed in this century have left discouragingly little mark (87:3)

They went further and raised a burning question which leaders and parents alike are facing today in thinking about the schools of the 1970's and the 1980's:

> How nearly have the American schools adjusted themselves to these needs upon which there is now general agreement among educational leaders and the interested public, and what factors have furthered and retarded this adjustment or adaptation? We can address ourselves to this question with confidence that, whatever changes may be demanded by the resolution of current controversies, most of the problems on which educators can now agree remain to be met in our schools. (87:5)

One of the objectives of the National Educational Finance Project is to focus on the needs of early childhood education, to examine alternative programs which may be organized and developed by 1980, and to estimate financial requirements of various alternatives. Attention will be centered on "needs upon which there is now general agreement among educational leaders and the interested public" and not upon "what factors have furthered and retarded" the developments in operation today. The purpose of this section, therefore, is to describe briefly the dimensions of the field of early childhood education which call for clarification.

DIMENSIONS OF NEEDS

The dimensions of needs include all the factors that contribute to the development of every individual. The problem before us is first to classify and then to define those things that affect the individual. Attention can be centered on three areas of life — the home, the school, and the world outside of the home and the school. These areas may be viewed as the total environment, or life-space, of the child. He can be described in terms of human attributes which commonly are referred to as change or growth and development. He may be grouped with others according to age, cognitive performance, social maturity, physical maturation, and other characterististics. He may be classified according to degree of development and compared with other children. Thus his characteristics may be described in terms of disabilities, normalities, and exceptionalities. Another way of classifying an individual is in relation to his own potential performance and not in relation to other individuals.

The broad dimensions of concern for the total population of children in this study are: (1) age, more specifically the groups under 3 years, and 3 to 5 years inclusive; (2) growth and development; (3) characteristics of the home environment which affect the child and are subject to amelioration; (4) child care centers; (5) formal school programs as intervening environmental factors; and (6) environment outside of these areas available to the home and school to help the child.

The dimensions of aggregate need which will be given special attention for definition of alternative educational programs and services and estimation of financial requirements by 1980 are: (1) the group under three years of age, (2) children with disabilities, mental, physical, severe emotional, disadvantaged home environment, and (3) all children of ages three, four, and five. The needs of children six years old and over will be treated as part of basic elementary and secondary education.

Individual Development

The most generally accepted theory of child development views it as a process of interaction between the individual's genetic attributes and his environment. Research and experience continue to expand our knowledge of the nature of this process. The combined efforts of social scientists, behavioral scientists, medical scientists, and educators, particularly in recent years, have produced some startling knowledge concerning the education of young children.

There is a large body of literature dealing with growth of the child and the influence upon him of environmental factors. Individual characteristics may be classified as follows:

1. *Intellectual performance.* This includes cognitive ability such as understanding of concepts, logic and reasoning or symbolic pattern of thought, linguistic ability (use of language), and perceptual ability.
2. *Social development.* This characteristic includes relations to others, such as development of sex role, consideration and respect of others, acceptance of social norms, and acquisition of skills to relate to others.
3. *Emotional development.* This includes acceptance of limitations, giving and receiving affection, developing a conscience, adjusting to psysiological changes, security and confidence, and control of one's self.
4. *Perception.* This characteristic is pervasive. It is a quality in cognition, social sensitivity, emotional status, and understanding of messages from the world around him.
5. *Motivation.* This is the individual's response to environmental stimuli, his expression of purpose or sense of direction, interest perseverance, and thrust.
6. *Values.* This includes the individual's set of preferences, standards, and exemplars of conscience and behavior.
7. *Physical development.* This characteristic includes his physique, extent of bodily development, coordination, and expression.
8. *Health.* This involves the status of bodily functioning — the extent to which the person functions adequately (sometimes referred to as normally) without impairment due to physical or emotional disorders.

This brief listing of personal characteristics serves to emphasize the modern concept of education. The individual is a complex being whose education is seen as one part of his total development. The school cannot, nor does it attempt, to do everything for the child; neither can the home. Both institutions need to work together, strengthened by other institutions in the community.

Status of Early Childhood Education

A recent report of the U. S. Office of Education shows that there were about 12.5 million children in the 3 to 5 age group in 1966 (32). In October of that year 248,000 3-year-old children were in school, 93.5 percent in nursery school (mostly private) and 6.5 percent in kindergarten (mostly public). There were 785,000 4-year-olds about evenly divided between nursery schools (mostly private) and kindergartens (mostly public). There were 2,641,000 5-year-olds in pre-first grade classes (mostly public). An additional 505,000 5-year-olds were in regular elementary classes (92,000 of which were in private schools). Of the total number of children in each age group in school the breakdown for 1966 was as follows: 3-year-olds — 6.1 percent; 4-year-olds — 18.9 percent; and 5-year-olds — 62.2 percent.

Early childhood education has experienced a long, slow development in this country. Although the kindergarten was introduced a little over 100 years ago, today only about two-thirds of the 5-year-old children are enrolled in kindergarten. A few states still do not operate kindergarten as a part of the public school system. Most nursery schools are operated by private groups.

What is the explanation for this slow development? It is lack of knowledge about what young children need, what can be done for them in school, what the home and school working closely together can do? To some extent this may be true. There still are serious gaps in knowledge. Furthermore, knowledge is not a commodity that can easily be packaged, preserved, and distributed and utilized with equivalent results by all consumers.

But there are other reasons as well. Attitudes of the society, passed from one generation to the next with little if any change, account for part of the reason. Many citizens believe that children should have a few years of "free" living within the home and not be introduced too early to the regimen of school. The age of six became fixed as the first year of schooling in this country out of considerations that were not consistent with present day knowledge about the actual maturation and developmental potential of children at earlier ages.

In some instances educational leaders of the past did not press strongly for pre-first grade schooling for fear that the introduction of new programs would result in diversion of resources from established programs. Some political leaders, on the other hand, resisted pre-school education because of added costs, lack of strong public support, and insufficient evidence of the educational value to be gained.

For whatever reasons, kindergartens have not yet been developed as fully as professional consensus would propose. In the past many nursery schools have placed primary emphasis on providing custodial service for children of mothers who worked or who had career interests. In others, the educational purpose was the dominant objective. Current directions of thought are clearly toward the establishment of nursery school programs with an educational purpose which provide activity for very young children under the jurisdiction of public school systems. There is also concern that the child day-care function should operate to meet the total social needs as well as relating effectively to the educational function.

A number of developments in the past quarter century have contributed to what may be a societal readiness for a great expansion of early childhood education. First of all, an emerging fruition of knowledge about the growth, development, and education of young children is reaching the public conscience. Part of this knowledge is the contribution of the persistent scientists and educators who with patience, skill, and motivation, have sought to find answers to the most difficult questions. Many of these persons have worked as lone investigators, often concentrating on a single phenomenon.

In recent years the investigative and experimental processes have been greatly accelerated, largely as a result of increased financial support from governmental and non-governmental sources. Perhaps the most dramatic activities have been centered on children with disabilities, such as special education for mentally, physically and/or emotionally handicapped children. More recently those defined as culturally disadvantaged have been been given special attention in programs such as Head Start, Follow-Through, and others.

The National Laboratory on Early Childhood Education is the most recent programatic research and development activity. This laboratory was established in 1967 with support from the federal government under the auspices of the U. S. Office of Education. There are six component centers, one in each of the following universities: Arizona, Chicago, Cornell, Kansas, Peabody, and Syracuse. The Coordinating Center is at the University of Illinois, Urbana.

The laboratory will draw upon intellectual support from the medical, social and behavioral sciences, as well as from the field of education, to conduct further research, to test the effectiveness of various educational innovations, and to develop methods for disseminating results to affect practice. The program is described by its leaders as "an exploration into the domain of scientifically based social change . . ."

The National Educational Finance Project on Early Childhood Education will take cognizance of the work of the National Laboratory; other Federally-supported programs; and experimental programs operated by universities and other institutions. The study will draw upon all sources of information as fully as possible, including the ERIC Center, the general literature, and recognized scholars in the field of early childhood education. The field is one of claims and counterclaims by researchers, innovators and developers. Like the private sector of business, there is a highly competitive arena of ideas in education. The problem confronting this study is to interpret the basic knowledge, to identify the major approaches, and to reconcile differences insofar as possible.

CHILDREN UNDER AGE THREE: NEEDS AND ALTERNATIVE PROGRAMS

There seems to be widespread consensus that the maturation of most children reaches a distinctive phase at about age three, thus providing a range of a general classification.

Distinctive Needs

There are specific and distinctive needs of children under three years of age that fall within the long-term, developmental needs mentioned earlier.

The writer once asked Samuel Kirk, a noted researcher on children with learning disabilities. 'What is the most appropriate age to introduce children to a formal educational program outside of or in collaboration with the home?" His answer was "during the mother's first month of pregnancy." His reasons? There is a large amount of evidence that the environmental factors of diet, exercise, and emotional state of the mother during pregnancy affect not only the physiology of the child but its intellectual capacity.

From birth to about age three the child's development exhibits distinctive biological characteristics: bodily coordination, walking, eating, toilet training, and others. His social, emotional, and psychological qualities likewise begin to develop. He perceives himself as a member of the family; feels a need for warmth and love, to explore and learn, and to communicate. By age three his verbal behavior has developed to a functional stage. His social adjustment is limited mainly to the home and family where he interacts with siblings and parents. Exposure to the outside world has begun, but largely from the arms of his parent.

The most profound knowledge brought forth in recent years is the accumulated evidence that the environmental circumstances of a child's life play a large part in shaping his development. In these early years his needs are: adequate food and nutrition, appropriate exercise, suitable objects for play, manipulation, perceptual development, interaction with members of the family, introduction to persons outside the family as well as to objects and animals, music, and a host of others. He has need to respond to his environment and for it to respond to him. He develops a sense of belonging, of participation and membership.

All of this means that he must be challenged and properly stimulated. For example, studies have shown that stimulating dialogue between the mother and the young child is extremely influential in his cognitive and linquistic development. Many retarded children (except for those retarded by organic defects) have failed to receive adequate stimulation and reinforcement from their environment in forms such as conversation, opportunity for interesting things to do, proper attention, and chance for development of good habits.

Alternative Programs

Given the state of knowledge about prenatal, perinatal, and postnatal environments of children, it is possible to postulate feasible alternative programs that may offer correction or remediation of existing problems and also provide environmental factors which may minimize, if not avoid, similar problems in the future. The alternatives are not defined as mutually exclusive programs required a single choice, but as possible combinations of programs, or even all of these. The basic assumption is that the public school system is the agency which should assume leadership to provide services and to enlist the cooperation of other agencies and institutions.

Some alternative programs for early childhood education may be listed as follows:

1. Dissemination of materials to families dealing with child-rearing practices, principles of child behavior and development.

2. A universal program of diagnosis or behavior analysis. This program would involve the collaboration of the home, the medical field, and the public school system. Bijou (4) lists the elements of such a diagnosis as: (1) historical data (including physiological factors; cultural factors such as socio-economic status, family income and parents' education; and psychological factors such as frustrations; anxieties, attitudes and abnormal social behaviors); (2) observations of qualified specialists; (3) interviews of parents by these specialists; (4) tests appropriate to young children.

This type of diagnosis could provide information as a basis for identifying children with actual or potential disabilities and establishing priorities of need for treatment.

3. Home-centered program. This would be a program with services carried to the home by specialists in education, medicine, and other community agencies. Parents would be given instruction and information on child-rearing and education of the children under three years of age. This program, together with the diagnostic program as described in number 2, would constitute a minimal or basic educational commitment that would be available to all homes on a voluntary basis.

4. Special programs for children with disabilities. These programs would be designed to provide instruction and other appropriate action to ameliorate disabilities. The current programs of special education for children with mental, physical and emotional handicaps and those with cultural disadvantages would be adapted to accommodate children below three years of age.

5. Child-care program. There are children who need full-day care, and in some instances total care, where mothers work,

follow career pursuits, or are temporarily unable to provide care. In addition, there are "problem" families where young children need this outside service.

These programs are operated by a variety of public and private agencies. Observations by experts in child development suggest that there is widespread violation of established principles of children's needs among the existing practices. There is strong evidence that these programs should be under the general supervision of persons in charge of educational and other services so that conflicting practices may be avoided and the maximum advantages of all services may be realized.

6. Universal program of educational service. This would be the program of broadest scope and comprehension. It would extend beyond the special programs to include all children. There are experts in this field who claim that the establishment of such a program, at least on a voluntary basis, is a worthy and realistic goal for this nation.

7. Research and experimentation. These programs should be supported by universities and other institutions as systematic efforts to provide new knowledge for improvement of practice.

8. Teacher-training. Many of the established programs, as well as potential ones, are handicapped for lack of staff with adequate and appropriate training. Therefore, there is a need to study programs for the pre-service and in-service programs for training of all professional personnel in the educational programs and personnel in the day-care centers.

CHILDREN OF AGES 3-5 INCLUSIVE: NEEDS AND ALTERNATIVE PROGRAMS

The human characteristics that emerge at about age three continues to develop with some distinctive changes from age three through age five. Again it is worth emphasizing that the development of children is not a perfectly continuous process, there are spurts and recessions within individuals and variations among persons. This age group for the most part includes children in present nursery and kindergarten programs.

Distinctive Needs

By age three children are passing from babyhood into early youth where the social tethers of dependence on parents and siblings are gradually lengthening. Body control and functioning have become stabilized. Individual autonomy in making decisions has asserted itself. Independent task-setting and motivation have become more pronounced. Language skills have become functional.

The particular needs of this age consist of further development of the general characteristics mentioned earlier. Parents and educators often underestimate the developmental capacity of children during these years. This is not a time of "waiting" or play for the sake of play. Instead, these children have drives, implicit tasks to be achieved, desires to know, and a sense of self fulfillment.

Those needs which may be most often neglected during this period are as follows:

1. Intellectual development. This includes knowledge of the world about him, opportunity for self-discovery about things, language skills.

2. Social development. At this stage the child needs opportunity to extend his participation into broader circles of peer groups. Also, he needs wider contacts with adults.

3. Emotional development. Self control, self-assurance, and consideration and respect for others should become highly developed during this period.

4. Perception and motivation. There is special need for activities to stimulate and challenge him for development of motivation and perceptual ability.

5. Physical development. Few people seem to be aware of the need for analysis of this phase of child growth and the results that can be achieved through proper programs of training.

6. Health. This is an area of consideration calling for improvement of services in many nursery schools and kindergartens.

Again, the knowledge of child growth in the three to five year age group deals with basic needs that add up to a totality of related parts. The issues that arise concerning particular programs are questions of adequacy relative to a given need that the extent to which other needs are met and not excluded or neglected.

Alternative Programs

The alternative programs that appear to be worthy of study for verification, estimation of financial requirements, and planning for implementation are as follows:

1. Special programs for children with disabilities. This alternative would expand present programs to include all qualified pupils of this age group as well as those under three. These programs would include children of various disabilities, now divided into the two general programs usually referred to as "special education," and "culturally disadvantaged."

2. Universal programs for all children, including those in special programs operated as an integral part of public elementary schools.

Nursery schools. There seems to be general agreement in the literature that nursery school education should be overhauled and organized as part of the public school system. The curriculum should have content for learning and instruction and related activities organized in the most effective arrangements now known in relation to the next stage or kindergarten. Staff members should have special training and be certified in the same manner as are professional staff members in other areas of the public school program.

Kindergarten. The kindergarten should provide a natural sequence of program and learning experiences appropriate to children of this age and should further their preparation for satisfactory performance in succeeding years. The traditional break between kindergarten and first grade will likely disappear, with adoption of a sequence of activities at first grade which will provide continuity to the educational program.

There is a large body of technical information on the nature of instruction; content of materials; emphasis on cognitive development, social skills, and other needs; characteristics of properly planned space and facilities; qualities of staff; and other factors. The terms *nursery school* and *kindergarten* may need to be supplanted by more functional names to describe the nature and scope of the field.

3. Home-school program. This program would be an extension of the one mentioned previously for children under age

three. Parents would be enlisted in activities designed to reinforce and extend the work of the school. For example, a number of studies have found that children's learning and general performance improve significantly when mothers participate as a "teacher assistant." The results suggest that mothers may be trained to help their children in significant ways under the guidance and assistance of the teacher.

The traditional assembly-line type of kindergartens and nursery schools with one teacher having two groups in one day must, in the opinion of many experts, give way to a different program. Instead of teaching a second group, the teacher may be far more effective if half of her day is spent working with parents and with individual pupils.

4. Child-care programs. Much consideration is of programs of child care and their integration with educational programs is found in the literature. During part of the day devoted to "care" the children would be under the general supervision of the educational system. Personnel would be trained to direct activities that would enrich and positively reinforce the program of instruction.

5. Research and experimentation. These programs would incorporate the three to five age group with the lower groups.

6. Teacher training. A program for this function should include the total range of early childhood education, and also of elementary grades.

SUMMARY

The field of knowledge on this subject is broad, fragmented, and filled with different approaches and propositions. Many scientists who have concentrated on children with special disabilities conclude that much knowledge derived from study of those children is applicable generally.

The literature shows cyclic patterns of ideas and propositions in the behavioral sciences, as well as in pedagogical strategies and curriculum concepts in education. For example, to some experimenters today "behavior modification" is the high priest among psychological principles. This is not a new principle. In fact it is recorded among ancient writings as "Train up a child in the way he should go; and when he is old, he will not depart from it." What is new, though, at least to contemporaries, is new insight into procedures and methods of using stimuli and re-inforcers to elicit response in a desired direction and to weaken response in undesirable directions. Some scholars caution against a narrow, mechanistic application of this principle and a lack of proper emphasis or other theories dealing with social development, emotional development, perception and motivation, values, and physical development.

The diagnosis of children's needs and the provision of educational programs must draw upon the psychology of the individual, instructional activity, and materials of instruction and learning. The list of options to use in the educational environment is long. For example, a few crucial ones are establishing and maintaining "learning sets" where children are protected from distraction, pretraining or learning readiness, and transfer of learnings from a specific task to a variety or related tasks. The psychology of materials is important. For example, materials may produce variable affects on learning, such as objects, words, pictures, sequencing, and elaboration of use.

Basic Concepts

1. Individual diflerences of intellectual functioning, congitive development, behavior, social development, and other characteristics of the human being are basic considerations in analyzing and defining educational programs.

2. The research of scholars like Sidney Bijou, Samuel Kirk, Jean Piaget, Harold Skeels, and a most of others has demonstrated conclusively that formal education of early-age children is highly beneficial, if not essential to some individuals, for performance in the years that follow.

3. The current knowledge of individual differences provides a dependable base for development of rational programs from the various approaches that have been tried in recent years.

Alternative Programs

The preceding lists of programs by age groups may be consolidated for the total range of children under six years old as follows:

1. Dissemination of information to families on child care, growth, and development.

2. A universal program of diagnosis and behavior analysis to identify children with general needs.

3. A home-centered program of instruction and assistance to families in need of service where children are not in educational programs at school.

4. Special programs for all children with disabilities: organic, cultural, other.

5. Formal educational programs, including special programs, for all children: (1) voluntary for ages 3 and 4, (2) required for 5 year olds. Most of these programs would be operated by the public school system. Programs operated by other agencies would be subject to minimum standards to be established by state educational authorities.

6. Child-care programs. These programs would be operated under either the auspices of the public school system or supervised by the school system to affect constructive relationships between the experiences of children in these programs and the experiences of children in these programs and the educational programs.

7. Research and experimentation.

8. Teacher training.

9. New media for instruction. Television, computerized materials, and other media may become especially important for home-based instruction as well as valuable to programs in school.

10. Non-public school systems. The introduction of large corporations and franchise companies should be examined for their potential as supplementary and alternative systems for the operation of early childhood education programs.

This study will pursue these alternatives to determine their reasonableness and to present a definitive statement of them; to estimate the size of the respective target groups; to describe the organization of programs and facilities; and to prepare estimates of the costs associated with alternative procedures.

PART 2

ELEMENTARY EDUCATION

In the early tradition, elementary education included formal schooling in grades one through eight. Later the kindergarten became a common appendage. After World War I when public secondary education developed on a universal scale, there were two patterns of organization, one including four grades beyond the eighth grade elementary school and the other comprising grades seven through twelve. A variation of this pattern occurred with the development of the junior high school into a variety of grade combinations, consisting of grades 7, 8, 9; 7 and 8; and 6, 7, 8. In recent years the concept of the junior high school has given way in some communities to the term "middle school." There is little agreement on what grade or age combination of students is best for the middle school or junior high school. Perhaps, the grades 6, 7, and 8 may have an edge over others in preference among educators. In actual practice most pupils are in the 7, 8, 9 combination, with 7 and 8 following a close second.

The point of this description is to give a general image of the organizational context of elementary education. This structure is in a state of flux. Since organization is the context in which the educational environment for children is created, this aspect of education should be given careful study. In the meantime, considerations of needs of pupils, programs and other considerations must not be restricted by the existing organization. At the moment there is no convincing evidence of what constitutes the best organization of elementary schools, middle schools, and secondary schools in terms of the most effective combinations of grades.

The schools of tomorrow may not be as rigidly organized by grades as those of today. The grade structure is related to age structure. Perhaps as we gain additional knowledge, learning theory and instructional theory may provide bases for modifying the organization in such ways that its effects may be amenable to more precise evaluation.

There is much evidence to suggest that the needs of individuals from birth to about age 18 (graduation from high school) change in such character as to warrant classficiation into four distinctive phases of education: early childhood (under age six);

elementary school; middle school; and secondary school. The question of what organizational pattern provides the most positive educational experiences to meet the needs of every child adequately in terms of continuity, sequence, and relevance remains a subject for study.

BASIC ELEMENTARY EDUCATION

The elementary school is the institution which provides the child's basic, formal education. The problem before us is to distinguish between *basic* and *non-basic* education. To do this it is necessary to find a principle which makes such a distinction meaningful and useful. It appears that there is a principle of *operational feasibility* by which the personal needs of individuals can be classified in terms amenable to natural operation of instructional programs and supportive services.

The purpose of the elementary school is to provide educational experiences for children in such manner as to insure continuity of learning and development. This stage of the child's schooling should build upon his development in the early childhood program, and continue his learning so that he may perform satisfactorily at succeeding levels of growth. Thus, the elementary school must continue the development of the child's intellectual growth, social maturity, self-understanding, emotional well-being, health, motivation, value pattern, and physical growth. These needs are not static; they change as children grow older. They also vary within environmental circumstances such as the urban ghetto, the suburb, and the isolated rural community.

The wide diversity in pupil characteristics and needs provides a rational basis for classifying basic and non-basic programs. In the preceding section on early childhood education alternative programs are postulated for study as feasible in terms of learning, instructional, medical, and social theories. If these alternatives are realistic there, they also may be extended into the elementary school. Thus, by definition, any program which is not universally applicable to most pupils would be non-basic. Non-basic programs are characterized as being unique in one or more of the following ways: (1) they are applicable to relatively few pupils, (2) they provide service during temporary crisis periods or conditions in the lives of some children, and (3) they constitute an operationally distinct adjunct for all or most pupils. For example, programs of "special education," "culturally disadvantaged," remedial instruction and other special compensatory services such as health service and food service for the disadvantaged might be classified as non-basic.

As knowledge about the individual and his development advances, the classification of programs and services may change. The educational process may become increasingly differentiated to the point where every individual is treated as "special" for some things. In that case the classification of basic educational activities might be modified, but still useful as a unifying principle for evaluation and operation.

Given general assumptions about the needs of society and knowledge of the needs of the individual, a general framework can be defined for analyzing elementary school education. The elements of this design are as follows:

1. Diagnosis of the needs of pupils. This phase involves the use of special procedures and methods for identifying individuals with special disabilities and other characteristics that require special programs and services. Also, diagnosis requires other procedures for evaluating the nature of basic needs of all children.
2. Educational programs to meet the needs of pupils.
3. Characteristics of the staff to operate the programs.
4. Instructional resources and facilities available to the staff.
5. Structural and operational patterns of the educational environment.

Diagnosis of the Needs of Pupils

The needs of many pupils have been diagnosed by the time they enter the first grade. Those with most severe physical and learning disabilities have been identified in special programs throughout the country. As these programs develop and relevant information becomes available, the capability of state educational agencies to estimate the total population with disabilities will improve. Some states already can make these estimates fairly well, others experience great difficulty in making them.

About two-thirds of pupils entering first grade have had experience in kindergarten, where there is opportunity for general diagnosis. There is apparently a wide variation among local school districts in the degree of sophistication of this diagnosis. Most pupils enter first grade without having a precise evaluation of their needs concerning intellectual performances, social maturity, emotional stability, physical condition, and other characteristics.

As children progress from one level to the next, schools acquire and record varying amounts of information. It is possible through sampling procedures to utilize available information, augmented by spot testing, to obtain reasonably good evidence of the extent to which the schools are meeting the needs of pupils. A number of studies using such procedures have found highly presumptive evidence that certain variables in the educational environment — for example, breadth and quality of programs, characteristics of staff members, and quantity and nature of instructional materials and facilities — are good predictors of the extent to which the school system is meeting the needs of pupils. Methods and procedures are available whereby a representative sample of local school systems throughout the nation can be studied to obtain reasonable estimates of unmet pupil needs that are translatable into programs, resources, and financial requirements.

The Educational Program

The term "program" is commonly used in a general way to define all of the activities that the school provides in attempting to accomplish its purpose. Instruction in the fields of language arts (reading, writing, speaking and listening, literature, grammar or linguistics), social sciences (history, geography, government, occupations), mathematics, and physical sciences traditionally have been considered as the core or the basic curriculum. In later years, high school and college, these fields of knowledge are called basic disciplines.

The curriculum, however, includes more than instruction in a nucleus of basic fields of knowledge. There are other areas of instruction that have become vital to the development of the individual. These consist of such fields as fine arts, including music, drama, drawing, dance, sculpture, and other forms; health and physical education; and handicrafts. The principal places of instruction are in classrooms, laboratories and the auditorium; on field trips; and on playgrounds. The school library is emerging as a complex center of instructional resources and services to pupils and teachers, adding another dimension to the total program. There are supportive services such as specialized counseling, psychological services, health, and others to reinforce instruction. Also, there are organized activities that once were incorrectly called "extra-curricular" functions. These can serve an important function in the general social development of children.

Then, there are special programs consisting of materials, teaching methods, and services for children with disabilities. It is common for schools to provide instruction to children who are confined at home or in a hospital for a long period of time and are able to continue study. Children with serious emotional disabilities may receive instruction and special therapeutic assistance. The participation of the parent in a formal plan of counseling and training is another activity to be included as a part of the school's environment. All of these constitute the school's total program.

Pupil Personnel Services

The task of providing comprehensive educational experiences for massive populations, with attention focused on the individual, cannot be accomplished effectively without an organized program of personnel services. The elementary schools have been slow in developing formal differentiation of guidance, evaluation and testing of pupil progress, psychological services, and social services for school-parent relationships. Traditionally these services have been the full responsibility of the teachers and principals.

The emerging practice is not a withdrawal of responsibility from these officials, but the organization of staff with specialized skills to augment the work of teachers and administrators. The early attendance officer has been replaced in some instances by trained social workers and others whose task is to develop a positive relationship between the home and the school with the aim of assisting the pupil. Guidance and counseling performed by the teacher are supplemented by highly trained specialists to help expand the functions of diagnosis, evaluation, and treatment. The traditional, one-card record that followed the pupil from one teacher to another as he progressed through the grades is obsolete. This system is being replaced by a comprehensive dossier of information that has been analyzed and stored for easy retrieval and use by teachers and other officials in working with pupils.

Thus, the function of personnel services is a part of the basic program of elementary education that can be studied empirically with reference to purposes, contributions, extent of development, and financial implications.

Evaluation

The decades of the 1960's and 1970's may become one of the most notable periods of educational reform in this century. Curriculum reform is well under way in secondary schools, and promising beginnings have been made in the elementary schools.

Research scholars and students of this reform movement are especially concerned about evaluation of changes in relation to the learner and his needs. A study of instruction published by a committee for the National Education Association (86) dealt with characteristics of the climate of learning for individuality. Another study published by the NEA (88) presented findings on six curriculum priorities:

1. Skills in reading, composition, listening, speaking (native and foreign language), and computation.
2. Ways of creative and disciplined thinking including methods of inquiry and application of knowledge.
3. Competence in self-instruction and independent learning.
4. Fundamental understanding of the humanities and the arts, the social sciences, and mathematics.
5. Appreciation and discriminating taste in literature, music, and the visual arts.
6. Instruction in health education and physical education.

In a recent analysis of new curriculum changes throughout the United States, Goodlad (67) described the many apparent achievements of the current reform movement. He identified three basic weaknesses: (1) little change in the social sciences, humanities (especially the arts), and health and physical education, (2) little combination of related fields such as the social sciences into social studies, and (3) little effort to fit various subject fields together into a unified curriculum.

A number of studies have reported findings on breadth or scope of the basic elementary school program. One of the most serious problems is imbalance in the curriculum. In some systems the program is overcrowded, due in part to a tendency to make additions without compensatory adjustments to the existing practices.

Other studies have dealt with the structure of the curriculum in relation to emphases such as the following: (1) skill in reading through use of basal readers and supplementary "library reading," (2) readiness of pupils before undertaking any new project and (3) planning in the fields of instruction concerning facts, rules, principles, concepts, topics, problems, units and events or focal points to stimulate and reinforce appropriate behavior of students.

The Staff

One of the best measures of the quality of education lies in the character of the professional staff: There is an increasing differentiation of roles with a tendency to define work loads in terms of areas of competence, performance levels, and other factors. The modern school system is a complex organization with teachers instructing in fields of their specialization. Other staff members specialize in functions such as administration, supervision, guidance and counseling, direction of materials resources, and research. These non-teaching specialists comprise as much as one-fifth of the total professional staff in the school systems considered to be meeting adequate standards.

In addition, there are para-professionals who serve as assistant teachers, producers of materials, and other functions. Also, there is another group of auxiliary staff consisting of secretaries, clerks, custodians of buildings and grounds, and operators of food and transportation services. There is another group of specialists in the medical field including nurses, psychiatrists, medical consultants, and others whose services are essential to periodic diagnosis, prevention, and treatment of disorders and to the perpetuation of a positive climate of health. This total range of functions is important to a modern school system.

All of the functions performed by this diverse staff are crucial to the maintenance of an adequate learning environment. For the teaching group some determinants of quality are educational training, experience, nature of personal commitment, and working conditions. In-service or continuing education appears to be a factor with far greater effect on performance than has been recognized in the past.

The composition of staffs can be evaluated in relation to the characteristics (standards) of instructional and related programs. Some of the most promising innovations are team teaching — not to be done by all members in a school — special materials resource personnel, special teachers to handle fields such as music and physical education, assistant teachers, and research and guidance specialists. In-service education programs are one of the most significant innovations of the horizon to cope with technological developments in instructional media, new materials, and new instructional strategies.

Instructional Resources and Facilities

The instructional practices followed in any given program are highly dependent upon the available materials and facilities. Books are still the primary source of learning materials, but they are being supplemented extensively by film projectors, tape recorders, record players, and TV systems.

The traditional school library is changing in physical structure as well as operational function. It is becoming a center for all types of learning materials: books, microfilm, projectors, recorders, and all other forms of information to be shared generally. Also, the library is a learning center, organized to extend the learning environments of the classroom. If properly designed the library consists of multi-purpose spaces which provide storage area for materials, rooms for group work and individual study, projection booths for individuals and groups, and others.

The technology of instruction is slowly changing to accompany the fundamental curriculum changes. Also, new materials affect instructional practice and the content of the curriculum.

Some of the most recent experiences in the use of small-scale equipment such as projectors, tape recorders, record players, and microfilm indicates that the next few years may offer exciting developments for improvement of learning. Computerized instructional units, and computerized storage and retrieval systems of "library" materials are among the most exciting developments in terms of their potential contribution to teaching and learning.

In addition to learning and instructional materials important changes are occurring in the design and function of space and furnishings. The traditional concept of a building and its associated grounds is changing. In densely populated urban areas, virtually all instructional space must be designed within the confines of the physical structure itself. In areas where sufficient land is available, the school grounds must be planned and developed in relation to the building to accommodate all educational activities. Changes in school building design and utilization have been based on the principle of educational utility. Progress in architecture and in construction technology has had important effects in stimulating changes. Larger classrooms, movable walls to arrange flexible space, special rooms and laboratories, elimination of much corridor space, private offices for teachers, office suites for administrative and supportive service staff, large areas specially equipped for food service, physical education, and group aassemblies are among the chief areas that have undergone marked change.

In most states the system of financial support for the schools does not provide for the support of the acquisitions of instructional materials and capital facilities as integral and essential elements of the educational program. In some states the entire cost of buildings is left to the local school district to provide from its tax base. In others, varying degrees of sharing are provided from state and local tax funds. In no case has a state developed a plan of total financial support to foster a statewide system for integral planning of educational programs and to provide the requisite inputs of materials and facilities.

Structural and Operational Patterns

These patterns are an important factor to consider in the future planning and development of elementary education. There are some important issues that may be identified from the trends of thought and practice throughout the country. These issues may be classified into two groups: structure at the *macro*, or district level and structure at the *micro*, or school level within a district. Among the 21,522 districts reported in 1966-67 that operate schools, 8,833 of them operated only elementary grades. Of the remainder, 883 operated only secondary schools, and 11,806 operated all grades. (110)

Among the persons who argue about the macro characteristics of the district, there are two camps: one group advocates a 12-grade unified system, another group argues for the dual system with separate elementary and secondary school districts. The trend of consolidation has been toward the unified type of district which operates all grades.

The issues concerning the *micro* level (internal district structure) involve questions of the type of school organization within the district, the internal organization and operation within the individual school, and the interlocking relationships and functions of specialized personnel within the district.

There are questions of how to organize special programs and how to deploy staff and pupils to attain the best educational results. Team teaching is in an early innovative stage of development. The non-graded primary (grades 1-3) organization is an emerging practice. Departmentalization of instruction above the third grade appears to be a trend of considerable magnitude. The use of special teachers to modify the self-contained classroom is another emerging practice. Increasing use of professional supportive service personnel is evident.

Changes in the structure of programs, instructional activity, deployment of staff and use of facilities are indigenous factors in the operation of the educational enterprise. Most of these changes are treated in the literature as innovations but they also may be viewed as dynamic qualities. One of the big issues, therefore, is what are the structural and operational characteristics that are essential to the establishment of viable educational programs to meet the needs of pupils. Given alternative answers to this question, another question follows: How can the school system organize to produce innovations, and to carry through beyond innovative levels to full development of the inherent change?

PART III

SECONDARY EDUCATION

In this discussion secondary education will be treated as including the middle (junior high) school and the high school. The differences of opinion about the grades which should be included in the middle school can be reduced to the following alternatives which seem to have the greatest support: grades 7-8-9; 6-7-8; 7-8; and 5-6-7-8. No attempt will be made in this paper to resolve the differences among advocates of these alternatives. In all cases proponents of a given plan presumably base their rationalization on the needs and behavioral characteristics of pupils. Thus faced with imprecise knowledge, differences in personal experiences, and extraneous factors the advocates of respective plans may find it difficult to arrive easily at a consensus. The important consideration in this paper is to focus on the basic needs of pupils that are unique at these two developmental levels.

OBJECTIVES OF EDUCATION

In 1918 the Commission on the Re-organization of Secondary Education of the National Education Association enunciated seven objectives which later became known as the "seven cardinal principles of education." They are: health; command of the fundamental processes (reading, writing, communicative skills); worthy home membership; vocational competence; effective citizenship; worthy use of leisure; and ethical character. Every generation since that time has restated these seven general objectives in the light of current circumstances. No better general categories have been defined to cover all social and personal needs. These objectives are applicable to all levels of education.

The distinctions in objectives appear at specific levels of tasks or operational goals. These are identified with such entities as fields of instruction, programs, schools, and school systems. Also objectives are formulated in terms of psychological and social needs of individuals.

Needs of Individuals

Between the ages of 1 and 15 most youth experience a unique period of physical maturation accompanied by unusual emotional and social sensitivity. This period of transition from childhood to early adulthood is filled with excesses — exuberance, tension, sensitivity, insecurity, vigor, imagination, exploration, goal-setting, and independence. During this time the individual exhibits a heightened interest in himself, his purpose in life, and his social adjustment.

The period of 16 to 19 years of age is also critical from a developmental point of view. This is the time of many fateful decisions: choice of vocation, marriage, to remain in school or to drop out, to enter college or to enter work after graduation from high school.

All of the basic needs that were mentioned earlier are applicable to secondary school youth. A continuous and challenging intellectual growth, development of healthy bodies, increased social maturity, emotional stability, sound values, and civic responsibility are among the personal needs requiring appropriate response and attention by the home and the school.

THE EDUCATIONAL PROGRAM

The program of secondary education, like that of elementary education, may be defined in structural terms of organization, content of curriculum, processes of operation, and supportive services. Most instructional activities are grouped by grades, although there are some proponents of totally non-graded schools. The concept of a comprehensive secondary school suggests the presence of a sufficient diversity of activities to meet the needs of every individual.

The literature reflects little consensus on the use of the terms *program* and *curriculum*. They seem to be used interchangeably much of the time. The term *program* seems to be used more loosely to include all types of activities under the supervision of the school system. Although the term *curriculum* is used in a similar manner by some writers, others restrict its use to what are commonly called instructional fields and courses of study. This writer will use *program* to mean any activity formally supported by the school system. The term *curriculum* will be limited to the formal instructional activities conducted in courses, independent study arrangements, and other means.

During the first two decades following World War II, American secondary schools were subjected to one of the most searching public debates of all time. There were critics inside and outside of the educational profession. Some were well informed and constructive; others were poorly informed, often hypercritical, and contributed few suggestions worthy of serious study and testing.

On the whole, the criticisms and debates of recent years demonstrated a genuine concern among citizens for evaluation of the performance of schools. The major concerns about the secondary school program were questions related to breadth of the curriculum, relevance of content, sequence of learning and development, quality of learning, supportive services, and activities focusing on personal needs in addition to intellectual development. The pervasive question of quality was emphasized in all of these concerns. Factors of concern involving the staff, instructional practices, materials and facilities, and other matters are discussed later.

Perhaps the dominant issue today is whether the secondary school has extended the scope of its purpose too far and has spread its resources among too many diverse activities which are designed to deal with the total needs of every individual. The predominant position among citizens and members of the education profession is that the secondary school should have a broad purpose and a comprehensive program. A number of studies have developed methods of analyzing the various parts of a comprehensive program to provide citizens and school systems with bases for choosing among alternatives. Perhaps the most central part of the total program is the curriculum. Its breadth and quality are the characteristics of primary concern.

Breadth of Program: The Junior High (Middle) School

The structure of the curriculum of this school reflects the organization of various fields of learning in relation to the increasing differentiation of interests and talents of youth in this age group. The curriculum of this school should mesh with that of the high school to provide proper sequence and continuity.

The basic fields of the curriculum are language arts, social studies, mathematics, foreign language, homemaking, fine arts, practical arts, and health and physical education. The special fields for particular groups include special classes for handicapped pupils, remedial instruction for pupils with learning disabilities, introductory courses in "vocational" education.

Within these categories the breadth and depth of learning activities available to all pupils can be measured. The language arts can be analyzed in terms of emphases on linguistics, reading, writing, literature, and listening. The social studies can be examined for the extent to which they draw upon the basic social disciplines such as history, government, geography, economics, and sociology. Foreign language, an elective field of study, is basically the language arts of a second language. Traditionally, homemaking has been a field of study almost exclusively for girls, and generally has been considered necessary for all girls. An additional function of homemaking is to serve as an introduction to more advanced study in this field in high school for a smaller number of girls.

The fine arts deserve special attention since they have been viewed by many citizens as being in the category of luxuries instead of fundamentals. This field includes a wide variety of art forms: music (general study, choral, instrumental); graphic art (painting, drawing, design); drama; and dance. The beginnings of these art forms should appear in the elementary school. The middle school should deepen the pupil's knowledge and skill in one or more areas of interest. This field is becoming recognized as one of the most important areas of knowledge because of its potential to develop appreciations, aesthetic qualities, and skill of lifelong value.

The field of health and physical education is undergoing re-examination in terms of basic knowledge and physical activity for effective living in an age when most individuals spend a large amount of their waking time sitting and riding. The curriculum in this field in the junior high school has moved toward more formal instruction in health and physical education by persons with special training in this field. In addition, more emphasis is being placed on the relationship between instruction and the pupil's developmental and functional needs.

The field of practical arts includes introductory work in such activities as drawing, woodworking, metalworking, ceramics, operation of power tools and typing. These activities provide students an opportunity to develop manipulative skills of general value, to help students appreciate relationships between technology and basic knowledge, and to serve an exploratory and guidance function which will enable some students to make vocational choices.

The fields of business education, agriculture, trades, industries, transportation, and work-study programs are not fully developed in the junior high school. Introductory study in some of these fields is offered in courses and as units of study in the social studies and the practical arts. These fields may be described as the pre-vocational or introductory study of particular broad vocational areas or occupations.

Breadth of Program: The High School.

Changes in the occupational structure and concomitant changes in the modes of social activity have increased the demands upon the individual for effective performance. These demands call for a longer period of formal schooling than in the past, a greater degree of specialization in most fields, and a higher level of general capability for transfer of learning and for retraining in special fields. Mass education is extending beyond high school graduation for an increasing number of individuals and the rate of dropouts from high school is declining.

These changes in the adult world have had a profound influence on current thought about the program of the high school. One extreme position held by some persons is that the high school curriculum should be limited to the basic fields of language arts, social studies, mathematics, science, and foreign language — and little else. The other extreme position is that a very comprehensive program should be offered. Those who take this position argue that all of the areas mentioned previously for the junior high school should be developed to more sophisticated levels and should be more highly structured. The basic fields of general knowledge should not be neglected, but they should be broadly conceived. Furthermore, most students in high school should have an opportunity for concentrated study in some area of knowledge with particular attention to one or more occupations. For example, a student with an interest in the medical sciences should have an enriched curriculum in the sciences. This student's interest in the medical sciences will raise demands for study in related fields, and perhaps general preparation for further study in college. On the other hand, a student may have an interest in the field of transportation. If the school has helped him as fully as possible, he is most likely to understand his capabilities and to make a reasonable judgment about his probability of success in, say, a technician-level curriculum in a junior college or a degree-level curriculum in a university. The proponents of a very comprehensive high school program argue that the institution owes this student (and everyone) the following: (1) to raise his general (basic) education as high as possible, (2) to afford him some special occupational training for a reasonable entry-level performance after high school graduation, and (3) at the same time provide him the introduction and background for further occupational training in a post-high school instituton if he plans to attend one.

Some recent studies have shown the dramatic differences which exist in the breadth of high school curricula in a number of states. It is not uncommon to find in a single state a range from 30 to 100 course credit units available to students in four-year high schools. Given the wide diversity of interests and capabilities among students, this range is too great to tolerate in a society where the levels of literacy in all fields of human activity continue to rise.

Alternative Structures of the Curriculum

A study of basic secondary education should explore the possibility of alternative structures of the curriculum which may yield a more functional delineation between basic and special programs than does the present structure. Fundamentally the problem is the organization of knowledge into forms that are most compatible with learning theory, instructional theory, and operational feasibility. For example, Broudy, Smith, and Burnett (54) proposed a secondary school curriculum of general (basic) education consisting of required subjects for all pupils. They suggested a classification or structure composed of five categories:

1. Symbolic skills: English, foreign language, mathematics.

2. Basic sciences: general science, biology, physics, and chemistry.

3. Developmental studies: evolution of the cosmos, evolution of social institutions, and evolution of man's culture.

4. Exemplars: art, music, drama, and literature.

5. Molar problems: typical social problems.

This illustration of the need for restructuring the curriculum is precisely what is found at the level of subject and course revision. One important task is to examine the extent of curriculum change in the country and to assess the financial implications and further possible changes.

The current movement toward general reform of the secondary curriculum originated during the first decade following World War II. There was a flurry of excitement and stimulation in the late 1950's resulting from Sputnik. Goodlad (67) reported on his evaluation of the movement in 1964. He described the field as "a semantic jungle" and then proceeded to suggest some terms which would serve as "organizing elements" such as principles, generalizations, skills, and values to unify the curriculum into a meaningful whole. From his survey of trends in 1964, he concluded that the reform movement had made notable achievements. However, he observed three serious weaknesses: (1) a lag in change in the social sciences, humanities (especially the arts), and health and physical education; (2) little effort to combine related fields; and (3) little or no experimental effort to fit together the various subjects into a unified curriculum.

Supportive Services

Since these services appear to be developing as an indigenous part of the curriculum and instructional process, they can appropriately be treated as a part of this section on the educational program. A differentiation of specialized functions to support and reinforce teaching developed first in the high school and has moved downward slowly into the junior high school and the elementary school.

Guidance, particularly, has become well organized in many large high schools,-partly as a concomitant of school size but

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more fundamentally as a differentiated function of teaching. The whole array of activities centering on diagnosis and assistance to the individual has given rise to what is called a program of pupil personnel services. The program includes counselors, psychologists, psychometrists, and other professional personnel who work with teachers and students and who gather and store information about pupil progress, disabilities, and treatment. Guidance has become far more than the service of a counselor who has an office stocked with a few college catalogues to offer to students who may be interested in choosing an institution for their higher education. Guidance is a program which unifies the full capacity of the institution to help the pupil understand himself from the day he enters until he leaves. Thus, guidance permeates everything that the student does in his total educational experience; and it is not limited to the 'interviews" with the guidance director. For example, a student in music may discover during his high school years that this is not a field in which he can expect to succeed as a professional worker or perhaps as an artist. His study of music will have lasting value, however, if only for developing his appreciation. More than that, it has served as a "guidance" function in helping him to understand himself. This example can be applied to all fields of knowledge and skill.

There are other non-teaching, supportive functions that are equally important to the operation of a complex educational system. As mentioned earlier in this chapter, these include administration, supervision, coordination of materials and learning resources (librarianship), and researchers. These services have developed in a more highly differentiated form in secondary schools than the elementary schools. However, there is evidence that the differences reflect mainly a lag in development in the lower grades rather than differences in intrinsic needs.

THE STAFF

The differentiation of roles is one of the most obvious characteristics of staff members in secondary schools. Most teachers specialize in one of the major fields of instruction, while others concentrate on the supportive services. The degree of specialization is largely a function of the structure of the educational program. There is an assumption, supported by practice and research evidence, that quality of performance is related to the degree of competence that is gained through specialization.

Some evidence of the extent of specialization of the staff in public school systems is shown by the data reported by the U.S. Office of Education for the year 1965-66. (111:28) In that year the total number of teachers in public elementary and secondary day schools was 1,710,888, while 173,521 supportive staff members were reported. Thus, the average of 10 percent of the total number of teachers was engaged in providing non-teaching supportive services, or a ratio of one supportive staff member to 10 teachers. Using the data contained in that report, the averages for the following states were respectively: Florida, 12.9; Idaho, 12; Illinois, 10; Kansas, 9.5; South Dakota, 8; and Utah, 12. From recent studies of these states, the writer found that the system for reporting staff differentiation do not provide a precise breakdown of those staff members who devote a portion of their time to teaching and the remainder of their time to non-teaching functions. (58, 84)

In this group of states a precise distribution of staff time devoted to teaching and non-teaching functions was computed in a representative sample of districts operating grades K through 12. The respective percents of teaching time that were devoted to non-teaching functions were as follows: Florida, 11; Idaho, 10; Illinois, 11 (excluding Chicago where it was 17); Kansas, 13; South Dakota, 13; and Utah, 12. In some of these states, notably Idaho, Kansas, and South Dakota, these figures were undoubtedly inflated as a result of the existence of small districts and small schools scattered in sparse areas. In the smallest districts the non-teaching services of the superintendent, principals and librarians might comprise a higher percent of teaching time than in the largest districts, which would have a wide variety of special services.

Staff Load

The deployment of staff in secondary schools by subject matter fields gives most teachers a load of from 100 to 125 pupils in the general (basic) fields. The number of pupils per teacher in special fields typically is smaller. In classes for the handicapped the number may be eight or ten; while in vocational fields the number may be around fifty. One of the important unresolved issues in the general (basic) curriculum is how large a number of pupils can engage effectively in teacher-pupil interaction.

Staff Preparation and Professional Maturity

The character of the educational preparation of teachers and other professional staff members is thought to be highly associated with the quality of performance. Thus, college [illegible] number of years of professional experience, and proportion [illegible] time assigned to field of specialization have been used as proxy variables in many studies to measure performance. Also, such measures as these have been used to study the interactive effects of staff characteristics with environmental variables such as staff load; economic status (salary level) of the staff members; and working conditions, including materials and facilities, community support, and other factors.

Several studies have revealed some trends of signficance to education. Small, poorly financed districts tend to have a higher proportion of staff members with only one college degree or with none. Continuing education (in-service education) of staff has been found to be one of the most important factors in accomplishing substantial change in the educational program of the system. The traditional differences in the training of secondary school teachers compared with elementary school teachers are becoming less prevalent than formerly. Current trends indicate that staff members at all levels are rapidly becoming more specialized.

MATERIALS AND FACILITIES

Most secondary schools are seriously deficient in amount and utility of space, and in appropriateness and quantity of instructional materials. The recent studies in the states just mentioned provide evidence which suggests that perhaps one-third to one-half of the school plants should be replaced. Many others needed substantial renovation. Many new secondary school buildings have gymnasiums designed for sports rather than for adequate programs of physical education, libraries arranged like those in the schools built a quarter century ago, poorly designed laboratories and other special areas, flexible arrangement of space, or other shortcomings.

The educational program of the future will require space and facilities to accommodate instruction in small groups, large groups, independent (individual) work, some team teaching, individually scheduled programs, flexible scheduling of classes, and programeed instruction through computer and other media.

INNOVATIONS

Many innovations that started in the secondary schools — for example, team teaching, revision of curricula such as in mathematics and science, independent study, programed instruction, and use of new instructional media — have moved into the lower grades. There are indications that many changes have been spotty, limited in scope, and often superficial. Some momentum has developed in recent years, but further education of the professional staffs is likely to be a determining factor in the rate of change which occurs in the future. Further technological developments also will have an impact. Some persons claim that far more basic "hardware" is available than schools can assimilate until additional "soft-ware" (instructional content) is developed.

SUMMARY

The foregoing review of practice and thought suggests a number of ideas, topics, and propositions about basic elementary and secondary education that may be clarified through studies such as the ones which will be undertaken in conjunction with the National Educational Finance Project. Among the principal ones are the following:

1. A statement of the basic needs of young children (under six years of age).

2. A description of alternative educational programs to supplement the home and other agencies in meeting the needs of every child.

3. A distinction between 'special" programs for particular

individuals and general or "basic" programs of universal applicability.

4. An estimate of target population groups of young children for the respective programs.

5. A statement of the continuing needs of children as they progress through elementary schools.

6. A description of the basic elementary education program: the curriculum, supportive services, staff, the nature of instructional materials and physical facilities, auxiliary services, and innovations needed in all of these components for reasonable quality of education by 1980.

7. A statement of the continuing needs of youth in the years of secondary education.

8. A description of the basic secondary education program, with analyses of components similar to that described for the elementary grades.

9. An estimate of the target population of pupils in basic elementary and secondary education programs.

10. An estimate of per pupil financial inputs to basic elementary and secondary education programs that may serve as a base of reference for comparing inputs to special programs such as special education of the handicapped, compensatory programs for other disabilities, vocational education, and adult continuing education.

11. An estimate of base line needs for adequate financial support of public education.

12. A consideration of the effect of an extended school year on educational programs and costs.

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CHAPTER 3

Dimensions of Need for Educational Programs for Exceptional Children

RICHARD A. ROSSMILLER

The concept that every child should be educated to the limit of his ability has resulted in the development during the present century of educational programs for children considered uneducable in centuries past. One serious problem in identifying and describing educational programs for such children is that the term "exceptional child" is applied to such a diverse array of children that it does not convey precise meaning. For example, it is exceedingly difficult to draw a clear distinction between programs of compensatory education, early childhood education, and special education. In this paper, Kirk's definition of the exceptional child will be employed:

> The exceptional child is . . . that child who deviates from the average or normal child in mental, physical, or social characteristics to such an extent that he requires a modification of school practices, or special educational services, in order to develop to his maximum capacity.[1]

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* The author wishes to acknowledge the assistance provided by Professor James McCarthy, Department of Behavioral Disabilities, the University of Wisconsin and Mr. John Melcher, Assistant Superintendent and Director, Bureau of Handicapped Children, Wisconsin Department of Public Instruction, in the early stages of the development of this paper. The author is especially indebted to Professor McCarthy for his incisive and constructive criticism of earlier drafts of the paper. For those errors of omission and commission which remain, the author assumes full responsibility.

This definition emphasizes that a child's exceptionality must be educationally significant. It also underlines the fact that a child who is classified as exceptional on the basis of medical or psychological criteria does not necessarily require a special educational program. Conversely, not all children who could benefit from special educational programs will necessarily be classified as exceptional on the basis of medical or psychological criteria. This point of view also was reflected by Barbe when he stated:

> 'Exceptional' refers to children who differ from the average to an extent that their differences warrant some type of special school adjustment, either within the regular classroom or in special classes.[2]

This paper is directed primarily to three aspects of the general topic: (1) describing the taxonomy currently employed for categorizing exceptional children, (2) identifying rough estimates of the population of children to be served in each category, and (3) outlining briefly the nature of existing provisions for financing educational programs for exceptional children.

THE DIMENSIONS OF EXCEPTIONAL EDUCATION

It is difficult to ascertain with precision the total number of exceptional children in the United States, much less the number of such children in any given school district. Several estimates of the incidence of exceptional children of school age are shown in Table 3-1. That table does not include estimates of the incidence of children who are culturally disadvantaged, and only the most recent estimates include the category "specific learning disabilities" — a category of rather recent origin. It should be emphasized that the estimates shown in Table I are gross general estimates; they can be expected to vary from state to state and from community to community according to local conditions.

Data gained from state studies of the incidence of exceptional children have resulted in overall estimates of incidence similar to those reported in Table 3-1. A study conducted in Georgia yielded an estimate that 10 per cent of all children in that state under 21 years of age were exceptional.[3] A state-wide

TABLE 3-1

ESTIMATES OF THE INCIDENCE OF EXCEPTIONAL CHILDREN OF SCHOOL AGE

Area of Exceptionality	*Estimate of Incidence*			*Estimated Number of School-Age Children*	
	a	*b*	*c*	*d*	*e*
Visually handicapped	0.2	—	0.1		
Blind	—	.033	—	13,800	17,300
Partially seeing	—	.06	—	25,100	31,400
Auditorily handicapped	1.5	—	—		
Deaf	—	.075	.075	31,300	39,200
Hard of hearing	—	.5	.5	208,900	261,500
Speech impaired	2.0	3.5	3.5	1,462,400	1,830,400
Crippled	1.5	1.0	.5	417,800	522,900
Special health problems	1.5	1.0	—	417,800	522,900
Emotionally disturbed or socially maladjusted	2.0	2.0	2.0	385,600	1,045,800
Gifted	2.0	2.0	N.A.	835,000	1,045,800
Mentally retarded	2.0	2.3	2.3	961,000	1,202,700
Specific learning disabilities	N.A.	N.A.	1.0		
Total	12.7	12.468	9.975	5,209,400	6,519,900

a. Estimates by Romaine P. Mackie and Lloyd M. Dunn, *College and University Programs for the Preparation of Teachers of Exceptional Children,* USOE Bulletin No. 13, Washington, D. C., GPO, 1954.

b. Estimates by Romaine P. Mackie, Harold M. Williams and Patricia P. Hunter, *Statistics of Special Education for Exceptional Children and Youth, 1957-1958,* USOE Bulletin OE-35048-58, Washington, D. C., GPO, 1963.

c. Bureau of Education for the Handicapped, U. S. Office of Education, "Estimates of Current Manpower Needs in Education for the Handicapped, 1968-1969," Washington, D.C., December, 1968 (Mimeo).

d. Mackie, Williams, and Hunter, *op. cit.*

e. Estimates based on incidence estimates by Mackie, Williams and Hunter (Col. b) and estimated population age 5-17, July 1, 1968, from Research Division, National Education Association, *Estimates of School Statistics, 1968-1969,* Research Report 1968 R-16, Washington, D. C., NEA, 1968.

census of all children of school age in Illinois in 1958 revealed that 11 per cent of the children enumerated were exceptional.[4]

Serious problems arise when one attempts to compare the incidence estimates generated by various studies and surveys. Estimates of the incidence of various types of exceptionality tend to vary rather widely from one study to another. These variations arise because of differences in the definition of (and criteria employed to identify) the exceptionality, as well as from differences in the locale where the study was performed, the methodology employed, and the degree of care taken by the investigators. As yet, no definitive census of the incidence of various types of exceptionality has been performed on a national basis.

Another way of viewing the extent to which there exists a need for special educational programs for exceptional children is to examine enrollments in such programs over a period of time. Data concerning enrollment trends are shown in Table 3-2. It should be noted that the data shown in Table 3-2 do not reveal the adequacy of the programs, nor do they imply that all children who might benefit from such programs are enrolled in them.

Enrollment in public school special education programs more than quadrupled between 1948 and 1963, increasing from 378,000 to 1,550,000—with an additional 111,000 children in public and private residential schools.[5] When contrasted with the fact that an estimated six million children could benefit from special education provisions, it is evident that a substantial unmet need remained.

TABLE 3-2

ENROLLMENT IN SPECIAL EDUCATION CLASSES FOR EXCEPTIONAL CHILDREN, 1922-1966

Type of Program	*1922*[a]	*1932*[a]	*1952*[a]	*1963*[b]	*1966*[b]
Mentally retarded	23,252	75,099	113,565	431,890	540,100
Speech defective	no data	22,735	306,747	802,197	987,000
Deaf and hard of hearing	2,911	4,434	15,867	45,594	51,400
Blind and partially seeing	no data	5,308	8,853	21,531	23,300
Crippled and special health problems	no data	40,186	29,268	64,842	69,400
Gifted	no data	1,834	22,916	214,671	312,100
Socially maladjusted	no data	14,354	no data	99,873	120,400
Total		163,950		1,680,598	2,103,700

a. Samuel A. Kirk, *Educating Exceptional Children*, Boston: Houghton Mifflin, 1962, p. 23.

b. *Digest of Educational Statistics 1967*, United States Office of Education, Washington, D. C.: GPO, 1967, p. 33.

Turning to data concerning individual school systems, during the 1963-64 school year the Chicago public schools identified about 7.3 percent of their total enrollment as exceptional children enrolled in special educational programs, with another two per cent of the total enrollment falling into the category of gifted pupils.[6] Other major cities reported the following percent of their total enrollment during the 1963-64 school year to be children in special education programs: Denver, 5 percent, Detroit, 7.4 percent; Fort Worth, 3.0 percent; Minneapolis, 6.6 percent; Oakland, 9.4 percent; and San Diego, 8.0 percent.[7]

Recent advancements in medicine are altering the characteristics of pupils who need special educational programs. For example, while the incidence of blindness caused by retrolental fibroplasia and the incidence of crippling due to polio have been reduced, the proportion of blind and/or crippled children with multiple handicaps has increased in recent years. The number of children with moderate handicaps has declined but the number of children with severe handicaps of a complex nature has increased.

Considerable controversy exists over the issue of whether pupils in special education programs should be integrated with pupils in regular classes insofar as possible, or whether they should be grouped in special classes. This controversy tends to center around educational programs for children with cognitive defects such as mental retardation or learning disabilities. There is general agreement that children in many categories of exceptionality — for example, speech handicapped children, gifted children and children with impaired vision — can be educated effectively in regular classrooms if they are provided with appropriate specialized help as needed. Proponents of integrating handicapped children with other pupils emphasize that social cohesion will be facilitated, but it has been pointed out that social cohesion will not be accomplished by integration alone; that the problems involved differ with each type of handicap.[8] On the other hand, serious doubt exists as to whether special classes for mentally retarded children facilitate or impair the social development of such children.[9]

Research concerning whether or not special classes, with their attendant increased costs resulting from small class size, special equipment and supplies, and more highly trained teachers, can be justified in terms of their educational "pay-off" generally has failed to produce evidence that such classes are worthwhile, at least from the standpoint of academic progress.[10] Goldberg and Rooke reported that four major studies of the efficacy of special classes for the trainable mentally retarded children — conducted in Illinois, Minnesota, New York and Tennessee — have produced somewhat negative results and lea. one to question the efficacy of such programs.[11]

Unfortunately, the research to date generally has attempted to evaluate the efficacy of administrative arrangements rather than the efficacy of the instructional programs which are actually carried out in classrooms. There is little reason to expect grouping to make a difference unless appropriately differentiated instructional practices and procedures also are employed. In a recent article questioning special classes for the mentally retarded, Dunn took the view that merely arguing the merits of special class groupings was futile; that attention should be directed to developing flexible arrangements whereby the optimal placement of children can be accomplished, i.e., that attention be directed to instructional practices and procedures rather than to grouping *per se.*[12]

During the past decade there has been increased recognition of the need to provide specialized guidance, placement and follow-up services for handicapped children, as well as concern for the development of educational programs which will help handicapped children better adjust to the world of work. Both counseling to help handicapped children overcome the social and emotional effects of their handicap and intensive vocational counseling are needed. A study conducted in Wayne County, Michigan, indicated that many retarded persons who had been enrolled in special education classes were unemployed for long periods of time, left jobs for inadequate reasons, or were discharged because of unsatisfactory behavior.[13] Similarly, a follow-up study of 100 persons formerly enrolled in special education classes in Altoona, Pennsylvania, resulted in the conclusion that there is an imperative need for occupational training and placement of handicapped children for which the school should accept responsibility.[14]

A major obstacle to the development of programs for handicapped children has been the shortage of trained personnel. Testimony in August, 1966, before the Ad Hoc Subcommittee on the Handicapped of the House Committee on Education and

Labor indicated that approximately 306,000 teachers were needed to meet the needs of handicapped children; that only 70,000 teachers were available at that time; and that only 21,000 additional teachers were expected to be trained by 1969.[15] Estimates of manpower needs for education of the handicapped released by the Bureau of Education for the Handicapped, U. S. Office of Education, in December, 1968, indicated a current need for 314,120 persons with only 83,859 persons currently employed.[16]

Substantial support for the training of special education personnel has been provided by P. L. 85-296, with a reported 11,593 trainees supported by the program in fiscal year 1967.[17] Although there has been a rapid expansion of programs for preparing special education personnel in recent years, very little research has been reported concerning special education personnel and their preparation. After reviewing the research completed between 1959 and 1965 concerning the preparation of special education teachers, Blatt concluded that "little experimental work has been completed; there is, in fact, a scarcity of any systematic study of the problems, whether historical, descriptive or experimental."[18] Thus, there is great need for research regarding the efficacy of specific instructional strategies and methods and for research regarding the most efficient and effective ways to prepare special education personnel.

Although large school systems generally have a sufficient number of pupils to provide special educational programs for pupils with most types of exceptionality, in smaller school systems it often is difficult to bring together enough pupils to justify a special program. (Special programs may take the form of providing either itinerant or consultant services to exceptional children who are enrolled in regular classes, or of providing special classes or schools for exceptional children). A number of cooperative programs have been developed in an effort to help small school districts meet adequately the educational needs of exceptional children. Lord and Isenberg identified and discussed five approaches to meeting these needs: (1) contracting for services, (2) developing a state operation, (3) organizing a special district, (4) forming a cooperative, and (5) developing an effective intermediate unit.[19]

PROGRAMS FOR EDUCATING EXCEPTIONAL CHILDREN

Writers in the field of special education exhibit general agreement concerning the categories (or taxonomy) within which programs for educating exceptional children may be placed.[20] It must be noted, however, that not all programs can be placed neatly into the general categories — for example, programs for culturally handicapped pupils who are also mentally retarded or visually handicapped.

Intellectually Gifted

Although concern for education of intellectually gifted children is not new, it has intensified in the United States in recent years, particularly in the post-Sputnik era. Substantial disagreement exists among authorities as to how intellectual giftedness should be defined and indeed, as to whom should be considered gifted. Sanborn and Wasson have suggested the following functional definition of the superior student: "Any individual who may profit best from a special program which facilitates his growing beyond — in breadth or depth and in any area — the learnings, experiences, and accomplishments ordinarily expected of the majority of students in his age range and grade in school."[21]

The matter of the relationship between IQ and creativity has been the subject of considerable difference of opinion.[22] During the past five years there has been a marked trend toward research concerning creativity. In fact, during the period from 1961-1966, the emphasis on research concerning the gifted published in professional journals swung from studies of the gifted child (61 per cent) to studies of creativity (64 per cent).[23]

The IQ score is still the measure most frequently used in identifying gifted children, although authorities differ as to where the dividing line should be drawn. De Haan and Havighurst divided the intellectually gifted into two groups: the highest 1 percent (or "first order") and the remaining upper 10 percent (or "second order").[24] Barbe commented that the term "gifted" is generally used in reference to the upper 1 to 3 per cent of the school population and that the most common cut-off points in terms of IQ is 130.[25] There is mounting evidence, however, that superior performance cannot be explained on the basis of intellectual potential alone. Thus, attention recently has been directed to non-intellective characteristics — for example, attitudes, aspirations and values — in an attempt to better understand superior performance.

Approaches to the education of intellectually gifted children generally have consisted of special classes, acceleration, enrichment, or combinations of these three approaches. Unfortunately, many of the special educational programs for gifted children have not been designed on the basis of research findings. Rather, they have been developed in response to "political" pressure such as that generated by Sputnik, or in response to economic incentives such as NDEA or other categorical grants for special programs for intellectually gifted children. When special classes or ability grouping are employed, for example, too frequently gifted children have been provided with the same instructional materials and subjected to the same teaching strategies as all other children. Consequently, research on the efficacy of grouping intellectually gifted children frequently has produced inconclusive results because of failure to adequately differentiate, or even describe, the learning experiences provided for gifted childen.[26]

Concerning acceleration, a considerable body of research indicates that gifted children can be accelerated by grade level or taught accelerated materials without negative results and with substantial positive gain in academic achievement.[27] Independent study programs also have been used for gifted children, but research indicates that the distinguishing characteristics for success in independent study are more likely to be social, emotional and attitudinal than they are to be intellectual or academic.[28] Gallagher and Rogge have criticized the failure to incorporate research findings into the design of educational programs for intellectually gifted children and pointed out the need for more research directed at the development and modification of educational programs for these children.[29]

There is some evidence that type of community is related significantly to the percentage of intellectually gifted children found in the population. Thus, any general estimate is likely to be inaccurate for a given community. Gallagher has estimated the percent of children in various IQ categories in two different socioeconomic communities, as shown in Table 3-3. The number of gifted children in a given school district will, of course, depend on the criterion for giftedness which is being employed as well as upon the nature of the community.

TABLE 3-3

APPROXIMATE PROPORTIONS OF SCHOOL POPULATION AT VARIOUS INTELLECTUAL LEVELS*

Stanford-Binet Intellectual Level	*Per Cent of School Population* *Average Community*	*Superior Socioeconomic Community*
IQ above 140	0.5-1.0	2-3
IQ above 130	2-4	6-12
IQ above 125	5-7	15-20
IQ above 120	10-12	30-40
IQ above 115	16-20	45-60

* James J. Gallagher, *The Gifted Child in the Elementary School*, Washington, D. C.: American Educational Research Association, p. 5.

Intellectually Handicapped

In contrast to the intellectually gifted or creative child is the child at the other end of the scale — the slow learner and the mentally retarded child. Although such children may be classified in various ways by physicians, psychologists and social workers, educators generally have used the categories of slow learner, educable mentally retarded, trainable mentally retarded and totally dependent mentally retarded in classifying intellectually handicapped children. The slow learner generally can function reasonably well in a regular classroom, although typically he will progress at a slower pace than the average child. The educable mentally retarded child is unable to function satisfactorily in a regular classroom without special help but does have the potential for acceptable, though minimum, adjustment in academic, social and occupational areas when given special educational attention. The trainable mentally retarded child is one who has potential to learn to care for himself in certain routine life activities (e.g., eating, dressing, toileting, etc.); to adjust to a home or neighborhood (but not to a total community); and to develop limited economic usefulness in simple and closely supervised work activity. The totally dependent retarded child is one who, as the term suggests, is unable to survive without close supervision and assistance in the most routine life activities.

There has been continuing debate over whether intellectually handicapped children should be placed in special classes or in regular classes. On the basis of a review of studies of the efficacy of special classes for the mentally retarded, Johnson concluded that mentally handicapped children who were enrolled in special classes achieved significantly less than those who were enrolled in regular classes, and this despite having small enrollments and specially trained teachers in the special classes.[30] Blackman and Heintz stated that, "The crowning effort in a long line of special class efficacy studies produced disappointing results," and concluded that "this approach to research has been unproductive in terms of understanding the teaching-learning process in the special education of the mentally retarded."[31] The research to date suggests that it is not the organizational arrangement per se, but the specific school task and the characteristics of the learner who is involved, that must be considered in designing educational programs for the mentally retarded.[32] Considerable research evidence supports the view that educable mentally retarded children may benefit from being placed in regular classrooms with normal children for activities in which they can participate effectively, with provision made for special help as needed on specific learning activities.

A relationship between socioeconomic level of the school community and the incidence of both retardation and giftedness has been noted. The California Study Commission on Mental Retardation found that the higher the socioeconomic level, the lower the prevalence of retardation at each of the elementary, junior high school, and senior high school levels surveyed.[33] Havighurst noted a steady decline in the percentage of highly gifted pupils in the Chicago public schools between 1957 and 1964 and attributed the decline to the migration of high-income families to the suburbs.[34]

Surveys have resulted in widely varying estimates of the prevalence of intellectually handicapped children in the population perhaps because different criteria for identifying mental retardation were used. The British Royal Commission in 1908 estimated only 0.4 per cent of the population to be mentally retarded while Anderson in 1922 estimated that 6.1 per cent of the population in "X" County, Minnesota was mentally retarded.[35] Goldberg and Rooke, after summarizing various estimates of the incidence and prevalence of mental retardation, concluded that an incidence figure of 0.3 - 0.4 percent is generally accepted for trainable mentally retarded children, i.e., those with an IQ less than 50.[36] It also has been reported that studies of incidence indicate that of every 1,000 children of school age, one or two will be found to be severely mentally retarded.[37] Kirk has estimated the number of intellectually handicapped pupils per 1,000 school age children in various types of communities. His estimates are shown in Table 3-4.

TABLE 3-4

ESTAMATED RATE OF MENTAL RETARDATION PER 1,000 SCHOOL-AGE CHILDREN*

Level of Community	*Totally Dependent*	*Trainable*	*Educable*	*Slow Learner*
Low	1	4	50	300
Middle	1	4	25	170
High	1	4	10	50

* Samuel A. Kirk, *Educating Exceptional Children,* Boston: Houghton Mifflin, 1962, p. 92.

Auditorily Handicapped

Children having auditory handicaps either experience difficulty hearing or do not hear at all. They may have been born with impaired hearing, in which case their auditory handicap interferes with the development of language and speech, or they may have become deaf as a result of illness or accident after their language and speech skills were already developed. Two categories of auditorily handicapped pupils are easily identified: (1) the deaf (consising of two subcategories, the congenitally deaf and the adventitiously deaf) and (2) the hard of hearing.

Although medical criteria of deafness (i.e., decibels of reduction in speech reception) are useful, from an *educational* viewpoint the important consideration is whether or not the child can use functional hearing for educational purposes. If he can do so, he can be classified as hard-of-hearing, not deaf, insofar as the educator is concerned regardless of the decibel loss.

Children with moderate hearing loss can usually progress satisfactorily in a regular classroom, although they do require hearing aids and often auditory training and increased use of visual aids. Children with severe or total hearing loss require special educational programs which may be provided in the form of special classes in regular schools, or in residential schools or day schools for the deaf.

Although a great deal has been written about the education of deaf children, very little objective research has been reported.[38] Several trends in research in language and communication which may have important implications for educating children who are deaf or hard of hearing have been reported: (1) design and construction of devices to transform the acoustic signal of speech into another sensory mode, for example, visual or vibratory; (2) development of devices to produce a frequency shift in an acoustic signal so as to take advantage of marginal residual hearing; and (3) increased interest in the use of manual communication in educating deaf children.[39] Further research in these and other areas, together with objective research and evaluation of the educational programs currently provided for deaf or hard of hearing children, may substantially alter the practices and procedures which are employed in educating such children.

Estimates of the number of children having hearing defects vary quite widely, ranging from as many as 14 per cent to as few as 1.5 per cent.[40] Silverman has estimated that roughly 5 per cent of school age children have impaired hearing, and that about 5 in a 1000 (0.5 per cent) require special educational attention.[41] McCabe also indicated that between 0.2 and 0.4 percent of the general population of children have hearing impairment severe enough to require special educational programs and that 3 to 6 per cent have a mild hearing loss.[42] Powers reported a tabulation of school age children in Chicago which revealed 184 deaf children per 100,000 or 0.18 per cent.[43]

Visually Handicapped

Visually handicapped children also can be placed into two subcategories: (1) the partially sighted and (2) the blind. A rather high percentage of the population has some visual defect, but the term "partially sighted" is generally applied only to those who have visual acuity of less than 20/70 in the better eye after correction.[44] As in the case of auditorily handicapped children medical criteria of blindness are useful, but *educationally* the distinction between the partially sighted child and the blind child is whether the child can see enough to be presented educational materials visually or whether he must be taught through the auditory and tactile senses. Thus, it has been said that visually handicapped children may be defined as those "who either have no vision or whose visual limitation after correction results in educational handicaps unless special provisions are made."[45]

Blind children are educated in residential schools, in regular schools with a resource or special class teacher, and in regular schools with itinerant teaching service available at regular intervals. Although originally the residential school was considered to be most desirable, emphasis has shifted to educating blind and seeing children together whenever possible. Decisions concerning the educational placement of a visually handicapped child increasingly are being based on the extent to which his visual impairment handicaps him in school instead of simply the extent of his visual loss, particularly in view of medical approval of unrestricted use of the eyes and of the use of low vision aids. Most educational programs for partially sighted children involve the use of resource rooms or assignment to special classes (with individualized instruction) for close eye work and to regular classes where oral instruction or physical activity predominates. In fact, serious questions have been raised regarding the efficacy of special class programs for partially sighted children.[46]

Typewriting is an important means of communication for the visually handicapped pupil with instruction on typewriting frequently beginning at fourth grade level or earlier. Mobility training is also an important adjunct of an educational and rehabilitation program for those who are totally blind—whether adult or child. For the totally blind child, braille reading and talking books constitute important means of communication. There has been considerable research on the perceptual processes associated with braille reading and on listening as a substitute for or a supplement to braille reading.[47] Each of these lines of research have important implications for the instructional procedures and processes employed with blind children. Research on the effectiveness of programs for educating blind or partially sighted children is sorely needed, as is research on the effectiveness of teachers and teacher preparation programs.

Mild visual defects are quite prevalent, with perhaps one out of every four children having some kind of visual defect. It has been estimated that in 1955 there were 68,000-70,000 partially seeing children in the pre-school and school age groups and that only about 8,000 of those children were enrolled in educational programs for the partially sighted.[48] However, by 1964, a study indicated that more than 50 percent of all pupils in the nation's public schools had access to full-time special teachers of the visually handicapped in either their home community or in a neighboring community.[49] A study based on 7,757 blind children indicated a ratio of blind boys to blind girls of 122:100 and reported that more than three-fourths of the subjects became blind before one year of age; that only about 25 per cent of the subjects were totally blind; and that nearly 50 per cent of the subjects had visual acuity greater than 5/200. Many of the latter group could read print and thus educationally could be considered partially seeing rather than blind.[50] Jones reported incidence figures of one visually handicapped child for every 1,000 to 1,500 school age children and one blind child for every 3,000 to 4,000 school age children.[51] His projections indicated that the total number of visually handicapped children would increase but the incidence of blind children was likely to decrease to one for every 7,000-8,000 school age children.

The incidences of retrolental fibroplasia, which was responsible for blindness in infants subjected to a high oxygen content in incubators, resulted in a significant increase in the number of blind children entering school during the 1950's. The prevention of retrolental fibroplasia which has been accomplished since the mid 1950's should greatly reduce the number of blind childen who will be entering the schools in the future. Unfortunately, there is a possibility that a wave of blindness in preschool children caused by rubella (measels) may follow the wave caused by retrolental fibroplasia.[52]

Handicaps Arising From Neurological Disorders

Many estimates of the incidence of various types of exceptionality include a category labeled "crippling conditions and special health problems." This category is of virtually no assistance in planning educational programs because it encompasses too wide an array of disabilities. Consequently, in this paper disabilities arising from neurological disorders and disabilities arising from physical handicaps will be discussed separately.

A variety of learning disabilities may arise from injury to or inadequate development of the central nervous system. Among the common disorders in this area are cerebral palsy, epilepsy, and encephalitis. Children who sustain brain injuries (usually associated with birth) which impair one or more of the senses also fall within this category. Insofar as the educator is concerned the crucial factor is the extent to which the child's central nervous system is damaged. If it has been seriously damaged, special teaching techniques and materials will be required; if not, the child usually can participate in a regular educational program. The kind of educational program required for children suffering from neurological disorders depends not only on the severity of the disorder, but on whether they also have other handicaps.

Among the learning difficulties associated with neurological disorders are dyslexia (difficulty in learning to read), dyscalculia (difficulty in learning numbers and number relationships), agnosia (inability to recognize sensory impressions), dysgraphia (difficulty in learning to write), and aphasia (inability to communicate in reading, writing or speaking or to receive meaning from spoken or written words). Each of these learning disabilities requires special instructional treatment which generally cannot be provided in a regular classroom, although it frequently can be provided as a special supplement to the regular classroom program.

The term "cerebral palsy" is applied to a group of conditions which have in common a lesion of the brain affecting motor control. Investigations of the intelligence levels of cerebral palsied children indicate that only about one-quarter of them are average or above average in intelligence.[53] Thus, a high proportion of cerebral palsied children cannot be expected to progress satisfactorily in regular classrooms. The type and amount of special educational treatment which these children need will, of course, depend upon the nature and extent of damage to the central nervous system. Also in many cases multiple handicaps which influence the nature of the educational program required by a child are associated with cerebral palsy. It was proven difficult to determine accurately the prevalence of cerebral palsy. Some studies place the estimate as high as 15-30 per 1,000 population.[54] Allen reported the incidence of cerebral palsy as about 0.3 per cent for this general population but as about 5 or 6 per cent among all live births.[55] A survey of cerebral palsy in Texas indicated an incidence of 2.34 per 1,000 live births and an incidence of 308 cerebral palsied persons of all ages per 100,000 population.[56]

Lesser and Hunt estimated the incidence of epilepsy at 5 cases per 1,000 children.[57] Martmer estimated the incidence of epilepsy or convulsive disorders to be about 1.5 per cent, with peak ages for development of convulsions or seizures occurring during the first two years of life and during adolescence.[58]

Handicaps Related to Physical Disabilities

Handicaps arising from physical disabilities are associated with cardiac conditons, diabetes, allergies, and the like. Cardiac conditions may be the result of congenital defects, or they may arise from diseases such as rheumatic fever. Allergies are relatively common among childen; muscular dystrophy and diabetes are less common but occasionally occur.

Children with physical disabilities usually are able to participate in regular school programs but modifications in physical facilities and equipment are necessary, medical supervision may be required, and transportation in specially modified vehicles often must be provided. Depending on the nature of the child's physical handicap (and the emotional problems associated with it), the child may be placed in a school for the handicapped, a special class in a regular school, or in a regular class with non-handicapped children. There is some evidence that special classes for physically handicapped pupils are educationally inferior to regular classes in meeting the needs of these pupils.[59]

When viewing estimates of the incidence of physical disabilities it is important to bear in mind that many children who satisfy the criteria for classfication within this group will require no unique educational equipment, methods, or services — they can participate fully and effectively in regular classrooms. Some, however, will require special consideration or modified programs within the regular classroom and a few will require specialized programs, equipment and services.

Various estimates have been made of the incidence of crippling conditions and special health problems:[60]

1. Congenital malformation — from 1.0 per cent to 3.8 per cent of all liveborn infants, increasing to an observed incidence of from 4.0 per cent to 7.4 per cent after clinical follow-up one year later.

2. Organic heart disease — 0.4 per cent of school age children (based on a study of 95,000 children in the Denver public schools and 30,000 children in the Chicago public schools).

3. Childhood leukemia — about 3 - 4 per 100,000 population (based on data for New York state and the province of Saskatchewan).

4. Allergy — an overall incidence of 28.5 per cent (past or present) with hay fever occurring in 19 per cent of all students, perennial allergic rhinitis in 6.4 per cent, and asthma in 2.8 percent (based on a stratified random sample of 2,600 eighth- and twelfth-grade pupils in Denver.)

5. Diabetes — one in about 2,500 children under age 15, (with only about 2.5 per cent of the diabetic population being children).

6. Muscular dystrophy — approximately one of every 2,200 children (with about one-half of all persons suffering from muscular dystrophy being children).

Speech Handicaps

The term speech defect refers to a defect in sound production. Although speech defects frequently are associated with mental retardation, cerebral palsy, and the like, they also occur in many children who are otherwise normal. Speech defects may be either functional or organic. Most speech defects can be alleviated or greatly reduced by speech correction programs. Speech corrective services tend to be concentrated in the primary grades and operate as an adjunct to the regular classroom program.

The Midcentury White House Conference report on "Speech Disorders and Speech Correction" estimated that 5 per cent of the population have speech handicaps. The committee's estimates are shown in Table 3-5.

TABLE 3-5

ESTIMATED INCIDENCE OF SPEECH DEFECTS AMONG CHILDREN IN THE UNITED STATES AGE 5-21*

Type of Defect	*Per Cent*
Functional articulatory	3.0
Stuttering	.7
Voice	.2
Cleft palate speech	.1
Cerebral palsy speech	.2
Retarded speech development	.3
Impaired hearing (with speech defect)	.5
Total	5.0

* Adapted from American Speech and Hearing Association, Committee on the Midcentury White House Conference, "Speech Disorders and Speech Correction," *Journal of Speech and Hearing Disorders*, 17 (June 1[illegible]52), p. 130.

Some confusion exists as to where language disorders should be categorized. (A language disorder is a problem in the acquisition and use of a language system.) Some writers discuss them in conjunction with speech disorders; others place them in the category of learning disorders. Language defects are quite prevalent in exceptional children, especially those with multiple handicaps, and probably deserve more attention than they have thus far received.

Handicaps Associated with Deviant Behavior

Children who exhibit deviant behavior comprise yet another category in the taxonomy of exceptional children. Kirk defined behavior deviation as "that behavior of a child which (1) has a detrimental effect on his development and adjustment and/or (2) interferes with the lives of other people."[61] This category includes the emotionally disturbed child who displays anxiety, neuroticism, or psychotic behavior, and the socially maladjusted child who displays truant, delinquent, or other socially unacceptable behavior. Perhaps the major problem in dealing with emotionally and/or socially disturbed pupils is that of identifying the underlying cause of their deviant behavior as a prerequisite to treatment. There is general agreement that difficulty with academic learning is a major factor in emotional disturbance.[62] Difficulty with academic learning may, in turn, be the result of specific learning disabilities. In such a case, alleviation of the learning disability will, in all likelihood, alleviate the emotional disturbance. In other cases, of course, the reasons for the emotional disturbance may be much more complex. Clearly, emotionally and socially disturbed pupils cannot be treated as a homogeneous group because the sources of their deviant behavior are many and varied.

Early studies indicated that delinquency rates could be identified with certain zones of an urban area, with the highest delinquency rates in the inner zone (business), the next highest in slum areas bordering the business zone, the next highest in the working man's zone, and the lowest in the outer zones of the city.[63] A positive relationship between successful school experiences and acceptable personal-social behavior in school has frequently been noted by investigators.[64] Reading disability has often been found to be associated with antisocial behavior, but the question of whether reading disability is a cause of emotional maladjustment or an effect of it remains unsolved.[65]

Provisions for children who are behavioral deviants involve the question of the school's responsibility for mental health of pupils, as well as the school's relationship to other social institutions — the home, the church, the courts, the welfare agencies, the penal institutions, etc. Programs for helping behavioral deviants range from special services for children in regular classes (e.g., psychologists and social workers) through special classes or schools to residential schools.

A study of public school programs for emotionally and socially handicapped children indicated that the overall goal of such programs was to attain normal educational development leading to the pupils' return to regular classes.[66] It was found that, in general, teachers in these programs had no special preparation, that pupils were predominantly boys of upper elementary school age, and that very few withdrawn children were found in such programs (indicating that disruptive classroom behavior was much more likely to be a cause for placement in the program than was withdrawal by the pupil). In comparison with regular classrooms, classrooms for emotionally handicapped children are characterized by a smaller number of pupils, a shorter school day, and individualized instruction of each pupil.

Although special classes may be necessary for the seriously disturbed child, if only to prevent him from disrupting the education of other children, the research to date has shown that special classes do not produce results significantly different from regular classes insofar as academic achievement is concerned.[67] Teachers of special classes for disturbed pupils report that behavior control is by far their greatest problem. The research to date lends strong support to the importance of clearly structured learning activities and procedures in classrooms for emotionally disturbed children.[68] Kounin has indicated that a teacher skilled in group management techniques often may be able to deal effectively with a disturbed child in either regular or special classrooms and that group management techniques are readily teachable.[69]

The absence of a generally accepted definition of emotionally and socially handicapped children makes it difficult to pin down the incidence of handicapped who fall in this category. White and Harris accepted an incidence of 4-7 per cent seriously maladjusted as a working estimate.[70] Lyons and Powers reported that 0.2 percent of the total Los Angeles city elementary school population was partially or totally excluded from classes because of behavior problems during the 1960-61 school year and that 90 per cent of this group were boys.[71] Three separate surveys made in rural-small town areas in Tennessee, Minnesota, and New York resulted in an estimated incidence of emotionally disturbed pupils in the public schools of 12.9 per cent, 22 per cent and 4.2 per cent, respectively — undoubtedly reflecting differences in the definition employed by the researchers.[72]

Reasons for referral of maladjusted children have been reported as follows: academic difficulties, 45 per cent; aggressive behavior, 30 per cent; mental retardation, 27 per cent; anxiety, 23 per cent; and other symptoms, less than 10 per cent.[73] It has been found that teachers and other children are able to identify with a surprisingly high degree of accuracy pupils with actual or potential emotional problems.[74] Ullman found that teachers identified about 8 per cent of their pupils as emotionally disturbed and that their ratings correlated .86 with the ratings of 22 clinicians.[75] Bower found that 87 per cent of the clinically known emotionally disturbed children were also so rated by their teachers.[76]

An analysis by Harris of 200 disturbed boys, half of them with learning problems and half without, revealed that more lower class and lower middle class than middle and upper class boys were in the disturbed low learning group; that families of problem cases lacked stimulation for education and had low anxiety regarding failure; and that boys whose mothers were ambitious beyond the boys' ability to perform became procrastinators and dawdlers in school and were virtually doomed to failure.[77]

Handicaps Arising from Learning Disorders

Learning disorders have been defined as "those deviations in the learning processes which are associated with an educationally significant discrepancy between apparent capacity for language or cognitive behavior and actual level of language or cognitive performance."[78] In short, pupils who have learning disorders comprise a portion of the group of pupils who commonly are referred to as underachievers (a group which also includes many pupils who are emotionally or socially maladjusted). Learning disorders generally are associated with underachievement, which also may be related to neurological, perceptual or other biological disorders.

The incidence of learning disorders is an open question, for it depends upon the definition which is employed and the screening procedures which are used. The U. S. Office of Education classification scheme, for example, includes children with learning disorders within the category of orthopedically handicapped and health-impaired children. In California, where the term "educationally handicapped" applies to emotionally disturbed and neurologically impaired children, approximately 20 per cent of the 2,309 children enrolled in 72 programs for the educationally handicapped were diagnosed as neurologically handicapped, with the remaining 80 per cent assumed to be emotionally handicapped.[79]

Bateman identified the following characteristics which have been found in groups of children with learning difficulties by one or more investigators: (1) poor performance on certain WISC subtests, particularly information, coding, arithmetic, and digit span; (2) poor auditory memory; (3) poor sound-blending ability; (4) problems in right-left discrimination of their own bodies, and (5) poor intersensory integration, e.g., inferior performance in matching visual dot patterns and auditory rhythmic taps.[80]

Considerable effort has been devoted to the development of predictive and diagnostic tests which will enable the early identification of children who are likely to experience learning disorders and which will diagnose specific learning disorders so that appropriate remedial steps can be taken. Remedial activities for children with learning disabilities are based on the assumption that the child can function in the regular classroom if he is given appropriate special education.[81] Thus, the aim is not to establish special classrooms for such pupils, but to supplement the classroom regimen with specific remedial activities which will enable the pupil to remain in a regular classroom.

Culturally Handicapped

Some writers include children disadvantaged by their home and/or community environment within the taxonomy of exceptional children. Since programs of compensatory education are being dealt with in a separate chapter, no further consideration will be given in this paper to this category of handicapped children.

CURRENT ARRANGEMENTS FOR FINANCING EDUCATIONAL PROGRAMS FOR EXCEPTIONAL CHILDREN

Local school districts still bear a substantial share of the cost of providing special educational programs for exceptional children. However, in many states a large share of the cost of such programs is borne by the state, and the federal government has become increasingly active in this field in recent years. Persuasive social and moral arguments have been advanced by those who believe that the states and the federal government should assume greater responsibility for financing educational programs for exceptional children. The economic argument for supporting such programs has been summarized cogently by the National Advisory Committee on Handicapped Children in justifying its recommendation that funds be appropriated for research and training programs for children with special learning disabilities:

> Even if all other social and moral arguments were disregarded, there are important economic factors to consider. In a very real sense the handicapped child can be either another economic burden on society or can be a highly productive economic unit, if he receives proper training and education.
>
> For example, when a handicapped child is sent to an institution for the mentally retarded and stays there over a period of his lifetime, it costs society a minimum of $75,000.
>
> If a child can be rehabilitated through special education at an early age, the community saves many thousands of dollars. For example, if it costs about $1,000 a year for the child's education between the ages of 6 and 16 — the total cost would only come to $10,000. With the background of education the child growing into an adult can obtain a job and become a substantive member of our society. Not only is he a producer of goods and services, but instead of spending federal, state, or local funds for his upkeep, he contributes to the economy and carries his fair share of taxes to support the society that helped him.[82]

Federal Programs

The first major piece of legislature which contained explicit provisions for programs for exceptional children was Public Law 85-864, "National Defense Education Act of 1958," which provided support for the development and implementation of programs for intellectually gifted children. Although piecemeal legislature concerning handicapped persons had been enacted by Congress prior to 1958, the enactment of Public Law 85-926, "Education of Mentally Retarded Children," marked the beginning of an increased concern on the part of the federal government for providing assistance for educating the handicapped. A third landmark in federal legislation for handicapped children occurred with the passage of Public Law 89-750, "Elementary and Secondary Education Amendments of 1966," which established a Bureau for Education and Training of the Handicapped within the Office of Education. Federal appropriations for educational improvement for the handicapped for the fiscal years 1968 and 1969 are shown in Table 3-6.

TABLE 3-6

APPROPRIATIONS FOR FEDERAL PROGRAMS FOR EDUCATIONAL IMPROVEMENT OF THE HANDICAPPED

	Fiscal Year	
Programs	*1968**	*1969**
Programs for the handicapped	$15,000,000	$29,250,000
Teacher education	24,500,000	30,000,000
Research and demonstrations	11,100,000	13,850,000
Captioned films and media services	2,800,000	4,750,000
Total	$53,400,000	$77,850,000

* *Where the Money Is* (American Education's Annual Guide to OE Programs), Washington, D. C.: GPO, 1968.
** *NEA Reporter*, October 25, 1968, p. 5.

Horn and Bowers identified a total of 73 Public Laws, enacted between 1949 and 1968, which contained provisions for education of the handicapped. They concluded from their analysis that:

> The legislation can be characterized as direct or indirect aid which usually falls into one of four categories, research, training, demonstration, or construction. Very little of the aid is given directly to the handicapped individual; most of it comes indirectly through a state agency, institution of higher learning, or local education agency. The pattern of legislative action has been one of gradually expanding services to a particular group, such as the blind or deaf, until virtually all handicapped persons are included. The pattern is to include all the handicapped and by implication show that a particular program is more appropriate for one group than for others, e.g., work-study programs or the job-training programs.[83]

State Programs

State support programs generally provide either for financing special education programs within the framework of the general state support program, or with categorical aids, or occasionally with a combination of the two. Financing special education within the framework of the state foundation program is more prevalent in the southeastern United States, while categorical aids are more prevalent in other sections of the country. Analysis of the provisions for financing special education in the various states, as reported in U. S. Office of Education bulletins summarizing the provisions of individual state public school finance programs,[84] indicates that nine states — Delaware, Georgia, Kentucky, Mississippi, Montana, New Mexico, Texas, Utah, and Wyoming — provide financial support for educational programs for exceptional children entirely within the framework of the state's general state support program. Thirteen states — Alabama, Connecticut, Florida, Louisiana, Massachusetts, Michigan, Nebraska, North Carolina, Ohio, Oklahoma, South Carolina, Tennessee, and Washington — provide support programs for exceptional children through both the general state supported program and through categorical aid for programs for specific target groups. Six states — Alaska, Hawaii, Idaho, Nevada, New York and Rhode Island make no explicit provision for state support of programs for exceptional children. The remaining 22 states provide only categorical aid for programs for specific target groups.

It is difficult to identify with precision the extent of state support for educational programs for exceptional children from the data provided in readily available literature. For example, it is impossible to ascertain, without careful study of the statutes and administrative regulations of each state, whether pupils enrolled in special education programs are counted in the local school district's enrollment for purposes of computing state aid provided under the state's general or foundation aid program, whether they are counted only under the appropriate categories. The computational procedure which is employed could, of course, make considerable difference in the amount of state aid available to defray the cost of special education programs. A second example is afforded by the provision in some states for the state to pay the "excess cost" of educating exceptional children relative to the cost of educating normal children. Again, the computational procedures employed could significantly influence the amount of state support provided.

Another way of viewing state support programs for the education of exceptional children is found in the analysis of state special education finance laws undertaken by the Council for Exceptional Children in which the programs were grouped into two broad categories: unit formulae and per pupil formulae[85] Unit formulae were further categorized as pure unit formulae and percentage reimbursement formulae. Florida's support program, which provides state support on the basis of one classroom unit for every ten exceptional children in special classes, was taken to be illustrative of a pure unit formula. Percentage reimbursement formulae, calling for state support at a specified percentage of the cost of the program, were found in Virginia and South Dakota.

Per pupil reimbursement formulae were further subdivided into three categories: straight sum reimbursement, excess cost reimbursement, and reimbursement on the basis of a weighted formula. Straight sum reimbursement was typified by Arizona, which provided a flat amount of reimbursement for handicapped children in addition to the general state reimbursement provided for each pupil. Excess cost formulae, of which the Pennsylvania, Tennessee and Michigan programs provided examples, base reimbursement of the cost of educating and exceptional child compared to the cost of educating a child in the regular school program. New Mexico provided an example of the use of a weighted formula in that handicapped pupils were weighted more heavily than regular pupils for purposes of computing state aid.

SOME PROBLEMS AND ISSUES CONCERNING EDUCATIONAL PROGRAMS FOR EXCEPTIONAL CHILDREN

A number of problems and issues which have implications for the future development and financing of special educational programs for exceptional children may readily be identified. Some are related to developments in the field of special education; others are related to developments in other fields and to possible societal trends. A few of these problems and issues are identified in this concluding section.

1. *How will future developments in medicine affect the need for special educational programs for exceptional children?*

We have seen the dramatic reduction of crippling resulting from poliomyelitis since the introduction of Salk vaccine, the virtual elimination of blindness caused by retrolental fibroplasia, and the reduction of mental retardation as a result of early identification and treatment of phenylketonuria. Future developments in medicine may produce a significant reduction in the population of children who suffer from other types of physical or mental disability.

2. *What effect will current research concerning the chemistry of the brain and the chemistry of learning have on the need for and nature of special educational programs for exceptional children?*

Recent research by Ungar, Krech, McGaugh and others[86] concerning the chemical nature of learning hold promise for the development of drugs which will facilitate or inhibit learning and memory and eventually might even lead to synthesis of the chemical components of learning. Should these events occur, their impact on educational programs for exceptional children would be enormous.

3. *What effect do the various methods of financing special educational programs have upon the quality, variety and efficacy of these programs?*

Little research evidence is available concerning such questions as the effect of categorical grants vs. general aid or the effect of "excess cost" aids vs. flat per pupil grants on the nature of special educational programs, the extent to which equity among tax payers is maintained, and the extent to which desirable experimentation and program modification is fostered.

4. *How useful are the present categories of exceptionality— which are largely medically and psychologically based — for the organization and operation of special educational programs for exceptional children?*

A comparison of the research literature concerning exceptional children with school programs for exceptional children leads one to question whether program-based categories would not be more useful. Similar educational treatments often are employed for children who have somewhat different disabilities and highly individualized instruction may be required for children with certain disabilities. While it is unlikely that most school systems will initiate separate educational programs for children in every category of disability, it is not unlikely that most school systems will attempt to provide appropriately differentiated educational experiences for the exceptional children residing in the territory they serve.

5. *Are the criteria — whether medical, psychological, or educational — which are applied to distinguish between different categories of exceptionality sufficiently clear and precise to accurately and consistently identify the various categories of exceptional children?*

We have noted, for example, that fewer educable mentally retarded children are reported in upper middle and upper socioeconomic class communities. One wonders whether, because of the stigma historically associated with mental retardation,[87] other "labels" are applied to such children in these communities. It may be that terms such as "aphasia," "specific learning disabilities," and the like are more acceptable.

6. *What effect will such emerging instructional practices as individualized learning, computer-based instruction and multisensory approaches to the transmittal of knowledge have upon special educational programs for exceptional children?*

For many exceptional children instruction currently is highly individualized, albeit closely monitored. If truly individualized instruction becomes the prevailing practice in educational programs for non-handicapped pupils, the arguments over whether exceptional children should be integrated into regular classrooms are grouped separately will be passé, since each pupil's program will be prescribed according to his own unique needs and competences. Exploitation of instructional technology which utilizes a variety of media to transmit knowledge may be of great value in the education of children who have one or more of their senses impaired.

7. *What effect might objective research and evaluation of instructional programs for exceptional children and programs for preparing teaching of exceptional children have upon the education of exceptional children?*

Research and evaluation of instructional programs for exceptional children is conspicuous by its absence. The literature is replete with exhortations concerning what "ought" to be and void of evidence concerning the efficacy of the programs which are advocated. Cost-benefit analysis of such programs is nonexistent. Knowledge gained through research has been slow to be incorporated in practice. The education of teachers for exceptional children has not been researched. There is great need for research and development work which will lead to more effective programs for educating exceptional children.

The problems and issues identified above are by no means exhaustive. They indicate clearly, however, that answers to many questions concerning the education of exceptional children remain to be found. Indeed, some of the relevant questions have seldom been raised.

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CHAPTER 4

Dimensions of Need for Educational Programs for the Culturally Deprived

ARVID J. BURKE*

This chapter is concerned primarily with two aspects of compensatory education related to federal and state school finance, specifically: (1) methods of quantifying or predicting the target population by states and local school systems and (2) unit cost differentials, if any, of various programs of compensatory education from those of regular elementary and secondary school programs in the various state and local units.

In order to accomplish these two purposes the concept of compensatory education and its present and anticipated status each are examined. Next the definitions of and the available data on its target population are discussed. Following this there are sections on types of programs and data on program effectiveness, costs, and finance. Unresolved problems and issues having implications for finance are noted in various sections. There is a brief summary at the end of the chapter directed largely to the two basic purposes identified in the beginning.

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* The author is indebted to Miss Lois Wilson and her staff in the New York State Teachers Association and to Professor Martin Etters, State University of New York at Albany for their assistance in evaluating references on the subject and to Dr. Irving Ratchick, Title I Coordinator, State Education Department of New York and member of Urban Education Task Force, United States Office of Education, for reviewing and criticizing the first draft.

CONCEPT OF COMPULSORY EDUCATION

The idea of compensatory education is a comparatively new one. The Dictionary of Education (1959) and the Encyclopedia of Educational Research (1960) do not mention the term. Gordon and Wilkerson, in their Foreword maintain that the term evolved around 1960. They say that it "refers to programs of special and extra services intended to compensate for a complex of social, economic, and educational handicaps suffered by disadvantaged children."[1] They define the "socially disadvantaged" as "a group of populations which differ from each other in a number of ways, but have in common such characteristics as low economic status, low social status, low educational achievement, temporary or no employment, limited participation in community organizations, and limited ready potential for upward mobility." Bloom, Davis, and Hess refer to compensatory education as a "system which can prevent or overcome earlier deficiencies in the development of each individual. . . . It is a type of education which should help socially disadvantaged students without reducing the quality of education for those who are progressing satisfactorily under existing educational conditions."[2] Deutsch and his associates use "compensatory" and "enrichment" in the same sense as "compensation that would lead to school performance consistent with their (children from disadvantaged circumstances) intrinsic capabilities."[3]

The concept appears to include much of what is often referred to as urban education. It also applies to a large segment of early childhood education as stressed by both Bloom[4] and Deutsch.[5] It reaches into vocational education, education beyond high school and into continuing or adult education as shown by Gordon and Wilkerson.[6] Rossmiller, in his chapter on "Financing Education Programs for Exceptional Children" in this report, noted that some writers classify compensatory education as one category of education for exceptional children.

Compensatory education, therefore, might well be described as one aspect of education adjusted for individual differences. Perhaps what makes it distinctive is the assigning of a social priority to the kinds of individual differences associated with the term.

In this study compensatory education will be assumed to mean special educational provisions or adaptations designed specifically to overcome learning difficulties or handicaps in school associated with poverty, class, status, nationality, race, cultural background, home conditions or adverse environmental conditions generally, as distinguished from organic causes.

The key word is school. The focus is upon what can be done to make schools more effecive in achieving their learning goals for the target population involved. If better results can be achieved by other strategies, it is assumed that these will be utilized.

STATUS OF THE CONCEPT

The concept of providing compensatory education has been adopted as a policy by the federal government and there now is a unit responsible for it in the United States Office of Education. Since 1965 the federal government has promoted compensatory education not only through Title I of the Elementary and Secondary Education Act, but also through many other programs noted in a later section of this chapter.

Most states have limited their promotion of compensatory education to the federally sponsored programs. Yet, some states had endorsed the idea prior to 1965 and a number of them have adopted state programs since then. New York State began to experiment with the idea of compensatory education as early as 1958, but more recently has tended to stress a strategy of integration. California began to encourage compensatory education in 1963; Massachusetts began to experiment with it in 1964; and Connecticut, Michigan and Washington adopted programs in 1965. By 1966 Gordon and Wilkerson found compensatory education programs in over half the states.[7] Since then the idea has spread into other states—largely due to federal aid.

The concept has been challenged on two grounds: the cost of compensatory education relative to its effectiveness and its effectiveness relative to other strategies. The first argument generally is used to support the second. Major controversy has centered around the issue of integration. Those who espouse this school of thought hold that the advocates of compensatory education have not concerned themselves sufficiently with the adverse effects of segregation upon school learning. The studies of Coleman[8] and of the United States Commission on Civil Rights[9] are cited in support of the integrated schooling strategy. Another challenge comes from the advocates of "black power" or "self esteem" approaches. Others see more hope through community involvement in education and the decentralization of large school systems. Another group believes that what is needed is a restructuring of the whole system. For example, in regard to compensatory education Fantini contends that:

> the evidence gathered from even the best efforts indicates that they are having little significant impact on the problem of low achievement among disadvantaged children; the compensatory approach is viewed with increasing distrust by the parents of academic failures . . .; doubts also are beginning to arise among educational strategists disappointed by the failure of incremental inputs to the existing system to make a substantial difference.[10]

Fantani is seeking to invent a new model of an institution which will be more capable of facilitating the attainment of learning goals than are existing schools.[11] There are, of course, those who think that compensatory education in combination with one or more of the other strategies will produce the most effective schools.[12]

Perhaps the most profound doubts concerning compensatory education are those revolving around the relative strength of antecedent conditions compared to the effectiveness of manipulating such a small part of the child's current environment as that part which is controlled by schools. The writings of Moynihan and others may explain why compensatory education has not had a greater impact.[13]

The response of the advocates of compensatory education to such challenges varies from questioning the validity of the studies to asking for more time for experimentation, evaluation, and development of effective programs. The Coleman report has been a matter of controversy since its publication.[14] The report of the Civil Rights Commission as it relates to compensatory education has been questioned.[15] As noted by Levine, the fact that certain compensatory education programs may not have produced significant results does not constitute proof that compensatory education (properly conceived) will not work.[16] The long term evaluation of the More Effective Schools Program in New York City by the Center for Urban Education has been cited both as being supportive of compensatory education and as indicating minimal impact upon learning. Deutsch observes that when innovations in compensatory education do not fulfill all "initial expectations they are dropped when they might have evolved into effective strategies."[17] Gordon and Wilkerson decry premature decision making. They maintain that it is not yet clear what is effective under what conditions.[18]

It is assumed that schools will continue to search for educational programs which are more effective in achieving their goals for disadvantaged learners, at least until such time as it is demonstrated that the goals can be achieved more effectively or more economically by other strategies. It is assumed further that the meaning attached to compensatory education will evolve and be clarified in accordance with the success and/or failure of various programs developed for different groups within the target population. Compensatory education is regarded as being in the formative state—a matter for experimentation and study —rather than as a fixed concept with generally accepted programs for implementing it.

These assumptions imply that any plan for financing compensatory education must be experimental in nature and flexible enough to adjust to changes in both the concepts and the practices used to attain the learning goals in school for the population involved.

THE TARGET POPULATION

Gordon reports that no aspect of the education of the socially disadvantaged has received more attention than the characteristics of that population.[19] Yet, very little reliable data can be found on the dimensions of compensatory education or on the size of its target population.

The many studies concerned with the identification of the disadvantaged who need compensatory education deal with factors affecting learning capacity and having roots in home conditions, family status, social class, racial segregation, cultural background, national origins, and other environmental conditions. According to Gordon, the studies tend to enumerate and describe single environmental variables rather than to find ecological or other combinations of factors which result in certain behaviors or conditions inimical to learning in school.[20]

Studies concerned with the specific learning difficulties of the population constitute another large group. The *Review of Educational Research*[21] and the extensive bibliography found in Bloom, Davis, and Hess[22] each contain many references to studies dealing with intelligence, perception, speech, language, cognition, achievement, and other aspects of learning as they are related to class, race, and other socio-economic variables. Of these, language appears to have received the most attention.

Gordon makes two observations with regard to the research dealing with compensatory education: (1) it tends to generalize regarding a population "which is probably infinitely variable." In this connection he maintains that "to describe them and plan for them as a group is hence in error." (2) to "establish the fact of correlation between certain conditions and poor school adjustment is not to establish the fact of causation."[23]

Even if causal relationship were to be established, it would require expert diagnostic personnel in all jurisdictions to generate reliable state and local statistics on the target population and its sub-populations based upon data on the interaction of environment and the response of learners to what schools teach, when they teach it, and how they teach it.

It is generally acknowledged that the disadvantaged do not represent a homogeneous population. The target population generally is thought of as including the poor (regardless of race), the non-whites, and the non-English speaking. It generally is characterized as having low social status, lack of power in community affairs, lack of upward mobility, and lack of cultural experience and stimuli for cognitive learning. According to Gordon and Wilkerson, the disadvantaged are predominately Negro, Puerto Rican, Mexican, and southern rural and mountain whites.[24] The American Indian, migratory families, and other depressed minority groups often are included in the population of the disadvantaged.

No total figures were found for a target population defined in terms of these sub-groups. Jablonsky estimated a total of 30 million based upon the assumption that 40 percent of the children at each age level will be under-achievers in school after allowing for those having physical or mental disabilities.[25] Her estimates by age level are:

Under age 6	10,000,000
6 - 11 years old	9,400,000
12 - 17 years old	8,000,000
18 - 19 years old	3,000,000
Total	30,000,000

Havighurst would define the population in terms of a 30 percent factor in large cities.[26]

The Office of Economic Opportunity,[27] using only family income as a basis for estimation, arrived at 16.9 million distributed as follows:

Under age 6	5,800,000
6 - 15 years old	8,100,000
16-21 years old	3,000,000
Total	16,900,000

Title I of the Elementary and Secondary Education Act, using a lower family income figure, estimated a target population of about nine million.[28]

Most states which have their own compensatory education programs define the target population in a manner similar to that used in Title I.[29] New York State is an exception. As explained in a later section, New York uses test results and defines the target population as those scoring below the twenty-third percentile statewide. Thus, any locality may have a higher or lower proportion of its elementary and secondary school population scoring above or below that point.[30] Applied nationally, the method used in New York State would produce a target population of 12 million. This estimate is, in fact, larger than the 17 million estimated by the Office of Economic Opportunity. Unlike the latter estimate, the New York estimate is limited to children enrolled in school and does not include preschool youngsters or those beyond school age.

It would appear that the size of the estimated target population depends upon the proxies and assumptions used. No estimate was found that was based upon the composition and characteristics of the target population itself.

Although the federal and state governments use such estimates as a basis for allocating funds, local school systems employ a variety of means to identify the target population for program purposes. Gordon and Wilkerson have summarized many of these.[31]

A most serious limitation of the census "low income" basis for estimating the target population for compensatory education is its failure to reflect migration or differential rates of family income growth or change. The census data are gathered only once in a decade. Attempts to adjust them accordingly to some measure of welfare payments (AFCD), as in Title I, introduces the variable of state and local differences in welfare policy and administration as well as differences in compliance with laws and regulations. Nevertheless, the method has enabled both the federal government and the states to deal with the problem. State and local units have been able to provide programs for disadvantaged persons identified by other means.

Much has been written concerning the use of test scores in identifying the target population. Karp and Sigel[32] and Ratchick[33] have shown the problems involved in using intelligence test scores for this purpose. Karp and Sigel[34] summarized the problems of using achievement test scores in identifying the population.

The chief advantages of using test results as a basis for estimation are that they can be kept up to date and can be obtained by schools. The use of test results in identifying the target population for purposes of federal or state finance, however, introduces a number of problems:

1. To what extent do test results omit part of the population, e.g., preschool ages?
2. To what extent do the test results reflect other target populations in spite of efforts to avoid overlap?
3. Does "underachievement" automatically exclude effective school programs from federal and state finance?
4. To what extent do the tests reflect conditions in other communities or schools?
5. Will the giving of financial support for "underachievement" discourage correcting it?

This search has revealed no other socio-economic measures that have been used to overcome the limitations of income or test results in estimating the target population nationally and by states. Yet, it would appear that socio-economic status correlates highly with achievement in school[35] and could be used as a proxy for it if the problems listed above prove to be serious. It would seem that socio-economic data could be generated at the school level and kept current. It may be that a combination of test results and school generated socio-economic data may provide the best estimates of the target population. The New York State Educational Conference Board has been studying this possibility.[36]

Ideally, the target population should be identified as quantified in terms of learning difficulties associated with known causes which can be overcome by school intervention at an appropriate time by an appropriate compensatory provision. Much more needs to be known before such an approach can become a reality. According to Havighurst, "There is an infinite gradation of social advantage-disadvantage and therefore any quantitative estimate of the number of socially disadvantaged children and youths must be a personal rather than a scientific statement."[37]

COMPENSATORY EDUCATION PROGRAMS

The newness of the concept, its experimental character, the controversies surrounding it, and the diversity of its target population all have contributed to a multiplicity of compensatory education programs. The hundreds of programs developed during the past decade also reflect the lack of reliable diagnostic techniques and lack of exact knowledge of how to deal with such a pressing social and school problem. They also are the result of a highly decentralized system of education with its wide differences in resources and personnel to cope with the problems.

Perhaps no school system has tried all the compensatory education ideas which have emerged; yet as observed by Gordon and Wilkerson, it is probable that every one of the wide variety proposed has received "at least a degree of consideration or trial in some school system."[38] Many communities have experimented with a wide variety of programs, e.g., New York City.

The hundreds of programs classified as compensatory education require a taxonomy for categorizing them. As this section will show, no uniform system of classification has yet been developed. Nor are the available categories particularly appropriate for financial decisions.

The Bloom, Davis, and Hess Report (1964) classified compensatory education programs into four groups: early experience, elementary school, special case of the Negro, and adolescent education.[39] In the case of the first group the report stresses nursery schools and kindergartens rather than parent education. In the case of the second it focuses upon early diagnosis of learning problems, individual attention, school and home cooperation, and curriculum revision. For the Negro the key elements mentioned are teacher selection, integration, occupational education and guidance. At the adolescent level special programs, tutorial help, guidance, basic skills, work-study programs and peer societies are included.

Gordon and Wilkerson (1966) employed seven categories to describe compensatory education programs:

1. Teacher recruitment and training
2. Curricular innovation
3. Reading and language development
4. Counseling and guidance
5. Extra curricular innovation
6. Parental involvement
7. Community involvement[40]

In addition to these seven categories, they employed the terms, "pre-school" programs and "drop-out" programs.[41] They distinguished pre-school programs for disadvantaged from nursery schools by the emphasis placed upon their specific learning problems.[42] Whereas the drop-out program began as attempts to keep potential drop-outs in school through personal contacts, the emphasis soon shifted to programs designed to prevent or to overcome the cause of early school leaving. It is noted that both of the program categories include a wide variety of experimental efforts.

The United States Office of Education,[43] in reporting on Title I programs (1968), summarized them under four headings:

1. Changing role of the teacher
    a. recruitment
    b. attitudes

  - c. training
  - d. aides

2. Changing role of the school
   - a. enrichment
   - b. longer year
   - c. longer day and week

3. Changing pupil population
   - a. pre-school
   - b. dropouts
   - c. non-public
   - d. non-English
   - e. parents

4. New directions
   - a. infant education
   - b. racially integrated compensatory education
   - c. concentrated effort
   - d. year-round school
   - e. more effective teachers
   - f. parent participation
   - g. community school system
   - h. diagnosis and prescription

For purposes of finance, it is essential to have categories to which costs can be assigned. For example, programs which add pupils, decrease pupil-teacher ratios, or require the services of staff for a longer time during a year have clear financial implications. On the other hand, programs aimed at improving teachers and guidance services, at revising curricula, at involving parents and at fostering community control may not have financial implications that can be distinguished easily. For purposes of finance, categories such as the following are needed:

1. Programs which increase the number of pupils serviced by the school;

2. Programs that extend the school day, week or year;

3. Programs which increase staff input relative to the number of pupils served;

4. Programs which require schools to recruit more personnel in a more competitive and expensive labor market;

5. Programs which require additional or specialized space, other facilities, or transportation.

Even categories such as these do not eliminate all problems inherent in thinking about the financing of compensatory education. Much of what is desirable as compensatory education could justifiably be applied to a much larger segment of the population than is included in the target population. When and how program costs are to be assigned to compensatory education *per se* under such circumstances is a problem that goes beyond the taxonomy of compensatory education.

The United States Office of Education in reviewing programs under Title I said "the major reforms now underway in low-income schools may be accepted priorities for all schools."[44] If this happens, the financing of compensatory education programs will reflect what the financing of all schools ultimately should be like.

Certain classifications of compensatory education described in sources cited above were examined in terms of their financial demands with the following results:

1. *Pre-School or Early Childhood Programs.* The major problem here is that these programs often serve other populations as well. Even where it is clear that the programs are conceived only for the compensatory education target population, there are wide differences in the age spans served and in the additional proportion or number of pupils for whom education is to be financed. Equally important are the variations in the time span of the programs during the day, the week, or the year. The number and quality of staff members required is extremely variable, as are the demands for space and facilities. Dependence upon highly educated professionals and volunteers differs widely in such programs.[45] The relative amount of staff time spent with children or with parents is a key factor in the demand for facilities.

2. *Elementary School Programs.* Aside from serving migrants and non-public school pupils, compensatory education has not increased materially the enrollment of elementary schools where compulsory education laws are in effect. It can increase attendance and reduce truancy. Many others have

increased the number of professional staff members relative to the number of pupils. Others have increased the input of teacher aides and other paraprofessionals. The implications of enrichment for staffing quality or specialization are extremely variable. Some concentrated effort programs have one staff member for each five pupils.[46] The same is true regarding demands for additional space, specialized equipment, and transportation. Some programs have increased the input of equipment and minimized the additions to staff.

3. *Secondary School Programs.* To the extent that compensatory education has increased school holding power and reduced drop-outs, it has increased the number of pupils for whom education must be financed. Otherwise, the financial aspects tend to behave as they do in the elementary schools and for the same reasons. There are some problems of overlap with vocational education.

4. *Continuing and Adult Education.* As in the case of preschool education, the problem here is to differentiate compensatory education from other aspects of such education. Because it represents an upward extension of schooling, continuing education does add to the number of pupils served by schools. Like other extensions of school programs there is a potential economy in the use of facilities which must be recognized in finance.

A review of the hundreds of compensatory education programs suggests that it would be impossible at any reasonable expenditure to determine the cost differentials for each of them. Practical considerations dictate that such an attempt be restricted to exemplary or effective programs, since only the latter are likely to be considered seriously for continued financial support.

EXEMPLARY PROGRAMS

The United States Office of Education, in reporting on Title I programs, attempts to give examples of programs considered outstanding by states.[47] The Office also contracted with the American Institutes for Research in the Behavioral Sciences to complete a study of selected exemplary programs for the education of disadvantaged children.[48]

The study completed in 1968 dealt with pre-school programs as well as elementary and secondary school programs. The procedure was to peruse over 1,000 program descriptions with the help of a panel of specialists reduce this number to approximately 100 programs which were believed to have enabled pupils to make greater gains in cognitive learning than they would have otherwise. Ninety-eight site visits were made. Data were gathered by structured interviews.

The analysis of data obtained through site visits made it evident that few, if any, compensatory education program evaluations "are free from blemishes of sampling, design, testing, data recording, or interpretation."[49] The report warns that inclusion of a program description in the report "does not guarantee that its results are better than some not described."[50]

The report describes a number of exemplary programs: seven for pre-school children; fourteen for elementary schools; and six at the secondary school level. The pre-school programs included those found in Bloomington, Indiana; Champaign, Illinois; Fresno, California; New York City; Washington, D. C. and *Ypsilanti, Michigan.*[51]

The elementary school programs dealt with homework, intensive reading, after-school activities, self-directive work, school and home, tutorial help, speech and language development, communication skills, concentrated enrichment, and suburban bussing. Three of the programs were in New York City; two in Hartford, Connecticut and two in Milwaukee, Wisconsin. Others were found in Joliet, Illinois; Indianapolis, Indiana; Detroit, Michigan; Flint, Michigan and San Francisco, California.

The secondary school programs included two of the above programs — homework in New York City and communication skills in Detroit. It also included a summer program for junior high school pupils and a college bound program in New York City plus the basic skills program in San Jose, California.

This study depicts some of the problems encountered in attempting to identify exemplary programs for compensatory education. Although they provide a starting point for further analysis, the descriptions of exemplary programs could have limited application in finance. Would specialists agree that they represent examples covering all of the critical aspects of compensatory education? How representative are they of evolving practice? Is the limited number of descriptions of secondary school programs adequate? These are only a few of the questions which could be raised and which must be considered in developing programs for financing compensatory education.

PROGRAM EFFECTIVENESS

There probably is as much evidence to support the effectiveness of compensatory education programs as there is to support the effectiveness of most programs now financed. However, as costs continue to rise and demands upon resources increase, public interest in the effectiveness of all programs will continue to grow. Indeed, the very evidence that has generated a demand for compensatory education could be interpreted as indicating that some regular school programs now being financed heavily may be wasteful for some pupils under certain conditions.

The United States Office of Education has suggested that the most effective compensatory education programs are those that concentrate on a limited number of children.[52] Some studies tend to associate effectiveness with high staff input relative to the number of pupils served.[53] If this is true, the search for less expensive means for accomplishing equal results will be intensified.

Most evaluations of the effectiveness of particular compensatory education programs have been done by their sponsors and in isolation. They tend to be supportive of the projects under consideration. Such studies have not proved to be particularly valuable in making federal and state decisions on finance. The American Institutes for Research in The Behavioral Sciences in reviewing such evaluations concluded that there were more errors of omission than of commission.[54] Another problem is that of unraveling the complex of interwoven programs found in a large city such as Los Angeles.[55] Wilkerson, after reviewing a large number of the studies, commented:

> The research evaluation of any program of compensatory education would seem to require (a) precise description of the educational experiences involved, (b) clear formulation of hypotheses concerning the effect of specified and controlled programmatic activities, (c) definition of

> appropriate tests of such hypotheses, and (d) collection and interpretation of relevant data through technically adequate procedures. Most of the studies here reviewed do not satisfy any of these requirements. . . .[56]

A major limitation of state and local evaluations done with varying degrees of scientific rigor has been their failure to create a body of theory concerning the conditions under which a given program can be expected to produce a given effect.[57]

Large scale studies of compensatory education programs have shown the effects to be mixed, but the studies themselves have received mixed reactions depending upon the beliefs of the critics and their own identification with different courses of action. One of the most heated debates has centered around the evaluation of the More Effective Schools Program in New York City.[58]

Two recent studies — one by the General Electric Company[59] of compensatory education programs and the other by the Westinghouse Learning Corporation of Head Start[60] — have raised additional questions and debate. According to these studies, the degree of success appears to differ among programs even within districts. Both studies found a lack of essential data. The General Electric study found that it was impossible to determine the distinguishing features of successful compensatory education programs.[61]

The United States Office of Education commented as follows about the evaluation data on Title I programs: "With limited test data and scientific evaluation mechanisms available for this report, it is difficult to make definitive judgment about the effectiveness of a program as diverse as Title I.[62] In the same report there is a summary of the major problems of evaluation and the variations that exist in the design and execution of state and local evaluations. The chief difficulty at the national level is the absence of uniform accounting and reporting procedures, the lack of certain census-type data, and lack of data on individual pupils, often resulting from the high degree of mobility of the target population.[63]

The problem and inadequacies of program evaluations have been recognized for some time by serious students of compensatory education. Gordon and Wilkerson said "The appropriateness of a practice or the uses of a program cannot be adequately judged from the enthusiasm with which it is embraced or the speed with which the practice spreads,"[64] and that "Despite the almost landslide acceptance of the compensatory education commitment, we find nowhere an effort at evaluating these innovations that approaches the criterion suggested."[65] Deutsch at the end of his book concluded, "Contrary to some statements appearing from time to time in the popular press — and to the views held on occasion by some government agencies — work in early childhood stimulation is far from done; it is in fact just beginning to develop the necessary prototypical models."[66]

The United States Office of Education had Technomics, Inc. do a feasibility study of cost-effectiveness applied to Title I projects.[67] Although the answer was positive, the American Institutes for Research in the Behavioral Sciences raised a number of questions.[68] In the meantime, ABT Associates, Inc. have been proceeding with the development of a model for predicting the cost-effectiveness for individual programs.[69]

The basic problems involved in evaluation or cost-effectiveness studies of compensatory education are the many intermingled variables affecting outcomes in particular settings and imperfections in selecting the target population, diagnosing its problems, and prescribing specific programs for each. Too little is known about the effectiveness of particular programs of compensatory education under given conditions to serve as a basis for cost studies. For the time being it would appear to be necessary to use the "exemplary program" approach.

PROGRAM COSTS

Gordon and Wilkerson attempted to obtain cost data for each of the compensatory education programs which they described.[70] They found it difficult to make comparisons of either total program costs or per pupil costs. While it was sometimes possible to isolate grants, data on indirect costs or supplements from state and/or local sources were not always available. Within school systems the practices employed in allocating funds to individual schools vary and the degree to which such allocations can be accounted for by specific programs also varies.

The United States Office of Education, in making projections of public school facility needs, assumed a pupil-room ratio of 25 for regular elementary schools and a ratio of 20 for regular high schools. For the disadvantaged it assumed ratios of 20 and 15, respectively based upon the assumption that 10 percent of the school population falls into this category. It was further assumed that 100 percent of the disadvantaged in the age 3 and 4 groups would be in school.[71]

If these assumptions are applied to unit costs, they translate into a 25 percent differential at the elementary school level and a 33.3 percent differential at the high school level. No data were found to substantiate these ratios.

Other studies sponsored by the federal government have generated cost data. For example, the descriptions of exemplary programs mentioned previously each have a section on budget giving total costs and number of pupils. However, these data are not intended to account for all expenditures associated with the program since such figures "are rarely obtainable." Rather, they are rough estimates of what the costs might be.[72]

There are very few firm data available concerning the costs of programs of compensatory education or concerning the cost differentials for such programs as compared with unit costs for regular elementary or secondary school programs.

PROGRAM FINANCE

Like compensatory education itself the methods of financing it are new, varied, and evolving. The federal government has employed a wide variety of categorized aid provisions. State practices differ markedly and some states use a variety of methods.

Federal Provisions

The federal government has in recent years, inaugurated a great many small fund categorical grants aimed at various aspects of compensatory education: for example, bilingual program, school drop-out program, migratory children program, juvenile delinquency program, institutionalized dependent and neglected children program, desegregation assistance, teacher institutes, Follow Through, Teacher Corps, adult basic education, program for Indian children, desegregation training, occupational training and retraining, welfare education, guidance, counseling and testing, school breakfast programs, Neighborhood Youth Corps, work-study programs, and civil rights education activities.

Generally such funds are allocated upon the basis of approved applications and some programs require state and/or local matching funds. The distribution to the states usually is determined by the size of the appropriation and a formula for dividing it among states; not by indicators of need.

Although Title I of the Elementary and Secondary Education Act is the largest single school-oriented federal program for compensatory education, many other large programs provide substantial financing for various phases of compensatory education. Among these should be mentioned Project Head Start, developed under the Office of Economic Opportunity and currently being transferred to the Office of Education. The Vocational Education Amendments of 1968 have special provisions for the disadvantaged, with 25 percent of the funds allocated to this group. The federal matching percentage for work-study programs has been raised from 75 to 80 percent. The Higher Education Amendments of 1968 also contain special provisions for the disadvantaged and transfer the Upward Bound and Work Study programs from the Office of Education. Also, the Talent Search program is merged with Special Services for Disadvantaged Students Program. The Juvenile Delinquency Prevention and Control Act of 1968 provides grants to public and private non-profit organizations for community-based juvenile delinquency prevention services and related purposes.

The distribution method for Title I funds is similar to that employed for the small funds: a formula for dividing an appropriation among the states and a system of applications and approvals at the state level. The division of funds among states and counties is made in terms of the proportion of children from low income families within each state and county. Operating units are required to make application for funds up to a limit fixed by the state plan for distribution within counties. No local matching is required.[73]

State Provisions

At least fifteen states have adopted their own provisions for financing compensatory education. These provisions have been summarized by the United States Office of Education.[74]

Two states — Nebraska and Washington — assign weightings to pupils enrolled in compensatory education programs. The first assigns a weight of two and the second a weight of only one-tenth. Such a wide spread in assumed cost differentials is difficult to explain.

Six other states have adopted expedients that have the effect of weightings in the local units to which they apply. New York State has one provision that, in effect, assigns a weighting of 17.5 percent additional state support in cities with a population of 125,000 or over but the additional money is not earmarked solely for compensatory education. New Jersey has a provision applying to cities with a population of 100,000 or over that, in effect, adds a weighting equivalent to $27.00 per pupil (on estimated weighting of approximately 33 percent not earmarked for compensatory education). Oregon has an appropriation applying only to Portland for approved programs or services for disadvantaged pupils. Wisconsin has a similar plan applying to Milwaukee. The size of the appropriation in each case has the effect of assigning a weighting. Two states have density provisions with about the same effects as the Oregon law: The Maryland provision has the effect of providing additional state money for Baltimore, while the Pennsylvania provision is intended primarily for Philadelphia and Pittsburgh. Neither is earmarked specifically for compensatory education.

Six state plans are designed to divide a fixed appropriation among local units according to the proportion of children from low income families in each. In this category are California, Connecticut, Michigan, one of the provisions in New York State, Ohio and Rhode Island. The New York State Plan is one of the largest, dividing $50 million among some thirty local units according to the proportion of pupils in the district scoring below the twenty-third percentile on state tests. To be eligible a district must have at least a specified minimum percentage of pupils from homes receiving aid for dependent children. California has separate funds for pre-school programs and programs in grades kindergarten through twelve. In the case of the latter, it has used test results as well as income data as a basis for distribution.

Three states have provided funds for research or experimentation. Illinois has limited its funds to universities and research organizations for the purpose of evaluating Title I programs.

Massachusetts provided small matching grants for local experiments. New York has had a number of funds for local experimentation since 1958.

A number of studies have documented the tendency for state school finance plans to provide larger amounts of money per pupil in suburbs (taken as a whole) than in the core cities.[75] Studies also have shown that on the average, total tax rates on property tend to be higher in the core cities than in the suburbs.[76]

These two facts taken together suggest some very serious questions concerning state policy and practice as it relates to financing education in general and compensatory education in particular: (1) Are state school finance plans contributing to the deterioration of core cities by their requirements for local financing? (2) Is the failure to recognize the special educational needs of the disadvantaged or failure to take them fully into account placing core cities at a disadvantage in state school finance?

Total tax rates are not high in core cities solely because of education. Polley has observed that federal and state assistance for other governmental functions tends to behave in the same manner as state school finance programs in the treatment of core cities.[77] Federal aid plans which require local matching also can contribute to deterioration of core cities.

State provisions for the financing of education are being challenged both in theory and in the courts as not providing equal protection under the laws for the disadvantaged population.[78] Regardless of what the courts may decide, the central problems revolve about real differences in need, actual differences in cost, differences in operational efficiency and economy affecting costs, and the mechanisms for resource allocation in terms of defensible needs and costs.

These problems, however, represent only one aspect of the issue. It is entirely possible that the traditional structure of school government, and the concepts of local fiscal capacity based upon that structure, may place core cities and their populations at a greater disadvantage than errors in need or cost determinations. The fact that cost determinations usually enter into fiscal capacity determinations means that the two must be considered simultaneously.[79]

As recognized by Cohen, inequalities in dollars per pupil allocated under state school laws *per se* mean very little.[80] Without data on the purchasing power of money among jurisdictions, differences in operational efficiency, and varying educational needs and problems, the exercise becomes futile. The real test is what pupils learn relative to what is attainable under particular sets of conditions.

SUMMARY

The target population for compensatory education is far from homogeneous and with existing techniques and facilities for diagnosis cannot be measured accurately by states or local operating units. It is necessary to rely upon estimates or proxies. However, existing estimates vary widely and the bases and assumptions upon which they are made are subject to serious limitations when used for decision making in federal and state school finance. It is essential to find a basis which can be kept current and which will be generally accepted by states and local units.

At the present time it is difficult to make determinations of the need for and the cost differentials associated with programs of compensatory education. The concept itself is new, subject to criticism, and evolving on the basis of experience and experiment. Too many programs have been developed to make it practical to assign costs to all of them. The selection of exemplary programs for this purpose is essential.

Even for exemplary programs, existing cost data generally are but rough estimates. Further data must be obtained in order to derive reasonably reliable estimates of cost differentials. With data on effectiveness being subject to so much uncertainty because of the many variables involved, cost-effectiveness data for differing programs or strategies to achieve a given goal are not available.

Until progress is made in solving these problems, the financing of compensatory education will continue to be characterized by expediency. Nor will it be possible to correct with any degree of precision one of the major weaknesses in existing state programs of school finance, i.e., the local units with large pockets of disadvantaged pupils.

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CHAPTER 5

Dimensions of Need for Vocational Education

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Vocational education is vital not only to the welfare of the individual but in these times of a rapidly developing technology it is also vital to the very survival of our society. National figures at the policy making level now clearly recognize this fact. For example John W. Gardner, former Secretary of Health, Education and Welfare observed that:

> "An excellent plumber is infinitely more admirable than an incompetent philosopher. The society which scorns excellence in plumbing because plumbing is a humble activity and tolerates shoddiness in philosophy because it is an exalted activity will have neither good plumbing nor good philosophy. Neither its pipes nor its theories will hold water."[2]

The National Advisory Council on Vocational Education which has been appointed by Gardner at the direction of Congress in its 1968 report stated:

> "Why is vocational education necessary? It is the bridge between man and his work. Millions of people need this education in order to earn a living. Every man wants to provide for his family with honor and dignity and to be counted as an individual. Providing for an individual's employability as he leaves school, and throughout his worklife, is one of the major goals of vocational education. Vocational education looks at a man as a part of society and as an individual, and never before has attention to the individual as a person been so imperative."[3]

THE PARAMETERS OF NEED FOR VOCATIONAL EDUCATION

Developing theories of instruction now include vocational education as a vital part of learning at all levels of education. The brief reviews of research presented in this chapter reveal clearly the importance of vocational education to the economic growth of the nation. The terms vocational education and occupational education may be used interchangeably in this chapter. Either is used in its broadest sense and includes technical education.

The first section of this chapter deals with the following topics:

1. The need for vocational education.
2. The target populations for vocational education.
3. The proportion of different age groups served by vocational education.

The Need for Vocational Education

The purpose of vocational education is to prepare people for work. There is no place in the world of work for the uneducated person or the educated person who has not learned how to work. Nor is there much place for the person who has not learned how to learn. The total educational process is increasingly tied to the work required by society. Venn[4] succinctly pointed out, technology has created a new relationship between man, his education and his work in which education is placed between man and his work for practically all men and all occupations. Both the nature of society and the nature of work have changed. The more rapid the change, the greater the interdependency between education and work.

The work people do is still the most occupying of all human activities. It sets the standard of living, influences family relationships and controls the quantity and quality of civic participation and responsibility in social, cultural and economic activities. Therefore, vocational education is a vital part of the total process of education. The purposes of both vocational education and education in general have so many things in common that vocational education must be thought of as an integral part of education and not as a separate or distinct entity existing by itself. Today a literate educated person needs both academic and vocational competence.

This country was founded on a firm belief in popular government and it has been apparent from the beginning that an educated citizenry is the key to the democratic processes of government. To use an analogy, the education of people becomes the coin which makes democracy negotiable for all. This educational currency, though, has two sides. On one is what we may term academic education. On the other, occupational or vocational. If a coin is split it becomes counterfeit. Likewise, if the education of people is split, it too becomes counterfeit and non-negotiable.

Academic education alone is not enough in today's technological world for even many initial jobs. Vocational education likewise is not enough. It may secure initial employment but with the many changes occurring within occupations, it will not guarantee continued employment without further education. People today require and deserve the whole coin of education.

A healthy and growing economy requires an education program that prepares all of its people to become active contributing participants.[5] Job preparation, both training and retraining represent economic growth-producing programs. The U. S. Department of Commerce in September, 1965 issued some Fact Sheets on the relationships of educational achievement to unemployment and poverty.[6] Similar ratios would undoubtedly hold true today. Table 5-1 shows the percent of incidence of poverty among families classified by educational level. It is noted that 17.6% of all families were at the poverty level in 1964 but that the range was from 3.8 percent to 41.8 percent depending upon the level of education.

[illegible]E 5-1 — EDUCATION AND POVERTY, 1964[10]

Educational Attainment of Family Head	*Percent of Families at Poverty Level*		
	All Families	*White*	*Black*
Less than 8 years	41.8	37.4	55.8
8 years	25.6	21.8	35.2
1 - 3 years high school	17.3	15.0	34.8
High School Graduate	9.1	8.2	23.6
1 - 3 years College	7.8	7.2	17.3
Baccalaureate	3.8	3.8	4.5
Average	17.6	15.4	37.3

SOURCE: U. S. Chamber of Commerce

National manpower policies which involve vocational education training and retraining play a signficant role in economic growth. Economic growth, in turn, provides a foundation for an articulated manpower policy aiming at a fully employed, responsibly educated and trained labor force. This provides, in turn, the basis for meaningful, satisfactory work for a rising standard of living for the people.

Psychology and the World of Work. Psychologists are concerned with the role of work and preparation for it and the effect it has on the personal fulfillment of the individual in society. William C. Menninger, M.D., a noted psychologist, points out that in our society work determines the way of life, particularly as it applies to the head of a household. Through work the individual finds the satisfactions of providing for his family, good relationships on the job and it may also become the means of expression of initiative, creativity or responsibility. One of the results of the maturing process is the ability to work consistently and with satisfaction to oneself and others. He elaborates further with:

"Work is the social act around which each of us organizes much of his daily waking experience and, hopefully, establishes a meaningful and rewarding life routine. One has but to witness the lines of men without work, or of men who lack edifying work alienated, thwarted, and cut off from the fulfillment of the—most human of sentiments, a sense of usefulness and purpose—to recognize the validity of the commonly voiced doctrine that work is indeed a way of life."[7]

To the psychiatrist, work is an essential activity of a mentally healthy person and a mature person. Persons in poor mental health or with symptoms of poor mental health often have concomitant disturbances in their work life. Many individuals who have difficulty in working have the capacity to carry on the technical requirements, the performance skills, but may not be able to get along with other people. The social and emotional incapacity of a person, his emotional immaturity or incompatibility with the group he works with must also be considered in the preparation for work.

Legal, social and technological transformations have altered the structure and style of work and, in some respects, its meaning. Such change has not, however, diluted the significance of work for the individual or for the social order.

Sociology and the World of Work. Sociologists are concerned with the social problems resulting from changes in the nature of work and the effects of work on productivity and vice versa. They see a changing role in vocational education. Education in general and vocational education in particular is viewed as a dynamic instrument of social change by lifting the economic well-being of greater numbers of people through increased productivity. They define productivity as a process of changing resources into products. The resources being the tangible input factors of capital, land, raw materials, and labor which result in an output of goods and services which satisfy human wants. The intangible factors are education, research and development, attitudes of workers and human relations.[8]

Friedman and Havighurst examined attitudes toward work in the following five groups: unskilled and semi-skilled steel workers; coal miners; skilled craftsmen; salesmen; and professional people.[9] All five groups valued work for its (1) association, (2) a routine which makes time pass, (3) a means to discover self respect and gain the respect of others. Workers in the lower skill area saw work as having the most meaning for earning power. The skilled worker and white collar worker attached additional or extrafinancial meaning to it. These studies also illustrate that social structure is related to the meaning of work. The meaning of work varies with an individual's place in the social structure and also by its absence either through unemployment or retirement. A man's work is a major social device for his identification as an adult. Much of who he is to himself and others is interwoven in how he earns his living.

When Professors Nancy C. Morse and Robert W. Weiss of the University of Michigan asked a national sample of 401 employed men if they would continue to work if they inherited enough money to live comfortably, 80 percent said they would because it gave them something to do, to accomplish things, to meet people, and to be active.[10]

The Economy and the World of Work. Many studies have been made by economists and educators to determine age earning profiles and age-education-earning profiles. Others concern the nature and strength of the relationship between the economic performance of industry (measured in terms of productivity) and the education of its labor force. Blaug and others[11] recognize several variables involved in such relationships but point out that any industry's economic performance that does not include the education element is less than satisfactory. They feel productivity analyses must include: (a) the derivation of education goals from the needs and demands of industry, and (b) the analysis of industrial consequences of particular educational policies.

According to this, from an economist's viewpoint, education becomes part of the productive input which is related to occupation (job performance) and job performance to output. Parallel to the productivity and/or profitability output is the change in monetary return to the labor force and its effect on the economy. Among variables economists are concerned with what constitutes the minimum amount of education necessary to make additional experience and on-the-job training contribute to production.

Ever since World War II which ushered in the era of automation there have been questions raised and doubts expressed about the necessity of preparing people for work when the very nature of work was drastically changing due to machines being designed to do jobs more efficiently and at less expense than people could do them. Indeed Ralph Bellman, a computer expert for the Rand Corporation, went so far as to predict that "Two percent of the population, and by implication the 2 percent at the upper administrative and executive levels, will in the discernible future be able to produce all the goods and services needed to feed, clothe, and run our society with the aid of machines."[12]

Many other scientists, computer experts and economists predicted equally grave if not quite as drastic results to our work force as a result of the acceleration of technology. Even as late as 1966 *Time* magazine in its essay section, predicted that about 10 percent of the present work force could produce all the goods and services the rest of the population would need.[13]

It is true that technology and automation have had a profound effect on the labor market and the kinds of jobs in it. Examples often quoted are about automated elevators displacing 40,000 elevator operators in New York City; 50 census bureau statisticians in 1960 doing the work it required 4,000 for in 1950; 30,000 cotton pickers replaced by machines in Georgia; 136,000 coal miners mining more coal in 1962 than 405,000 did in 1950.[14]

It is true that many low skill jobs for people have disappeared, but many new ones have been created. From 1961 to 1965 industry provided some 6 million new jobs which were not in existence before 1961. Only a small percentage of these were provided by governmental programs. In 1966 the job market called for 1.4 million new workers. This was 600,000 above the number of new workers, ages 18 to 19 who were entering the work force. The 600,000 had to be drawn from the ranks of the unemployed and had to be given some preparatory training or retraining.[15]

Technology has caused an increase in jobs, not a decrease, although as stated earlier there has been a shrinkage in some occupations such as agriculture, mining, and some kinds of manufacturing. The overall increase in jobs has resulted in shortages of many skilled workers in areas for which secondary schools, adult and apprentice programs have been supplying the workers.

The number of households established in the 1950-1960 decade increased by 20 percent, about equal to the population increase of 19 percent, but the number of electricians and plumbers increased only an average of 10 percent and the number of carpenters even decreased. This has resulted in a continuing shortage of skilled workers in the construction trades. The effects can be seen in new prefabricated units developed to supply needs and in the hourly wage rate increases in these occupations as contractors competed for workers with skills. Although vocational schools increased enrollments in agriculture and home economics, they did not enroll enough in the trade areas.[16]

During this same decade the number of cars and trucks increased by 50 percent but the number of auto-mechanics by only 3 percent. There is such a shortage of skilled auto and diesel mechanics with the technical know-how of diagnosing auto malfunctions with the necessary sophisticated equipment that the major car manufacturers are establishing their own schools and repair and maintenance clinics. Air-conditioning, automatic transmissions, stereo and other electronic accessories, turbines, and fluid power drives require new and better skills in the growing field of transportation where about one in every seven workers is employed.[17]

What contributes to or causes the great increase in jobs in the economy? It is more than the increase in gross national product although just the increase in the economy accounts for many jobs. Much of the job increase is due to research done to discover and develop new products for consumers and to improve the products and goods we already have. Supporting these technological developments for consumer use are growing activities in scientific research and development. The presence of 2.3 million scientists, engineers, and technicians in a work force of over 71 million in 1965 (one scientist, engineer or technician for every 30 workers in other occupations) presages even more rapid technological change in the future which will affect occupations and the preparation programs for them.[18] Research in the United States is said to be its 6th largest industry. In 1965 we spent $20 billion on research. We have 23 researchers per 10,000 population at work compared to 18 in Russia. Other countries depend on the United States to do most of their research.

The results of research are phenomenal. Computers, missiles, space satellites, jet airplanes, new products in optics, drugs, biochemistry, bioengineering, synthetics, food, fibers, automated equipment as well as the hundreds of new appliances considered necessary in our homes, offices and automobiles, compete for our attention and purchasing power for work, leisure or more comfortable living.

Some of the new occupations which are evolving from technology and which require technicians to install, maintain, and improve have been in the following fields:

1. Systems engineering (mechanical and electronic combined). This involves new developments in power control and the rapidly developing field of fluid power.

2. Automation engineering technology (production and manufacturing). This requires new knowledge and skill in dealing with power sources, control mechanisms, and study of the economic feasibility of such developments in manufacturing.

3. Instrumentation technology (hydraulic and electronic controls).

4. Materials engineering (new synthetics as well as new uses for materials long used). It is involved with the production and development of metals, plastics, ceramics, gases, liquids and fibers.

5. Biomedical engineering (instruments and devices).

6. Oceanographic research including aquanautics.

7. Astronautical research and developments.

8. Water use and treatment, including pollution prevention and control, as well as desalinization.

9. Agricultural technology and research, new sources of food.

10. Conservation of natural and human resources and technologies.

11. Government and municipal services and technologies including law enforcement, food science, traffic control.

12. Quality control technology.

These are only a few. For example, in quality control some large industries engaged in defense work and rocket and missile manufacture employ from one of every six to one of every ten workers as a quality control technician. Technological developments require in new products and services precision, accuracy and reliability. Occupational preparation programs must include development of these characteristics.

We have a shortage in long established skilled trade occupations such as carpenter, plumber, electrician, auto-mechanic, etc. To this shortage must be added the millions of workers with new skills that will be required by our rapidly advancing technology.

The Target Population for Vocational Education

The technological, sociological and economic trends just described, indicate that the total target population for organized vocational educational experiences includes the total labor force. Table 5-2 shows the total population, labor force and labor force participation rates from 1960 to 1980 as projected by the United States Department of Commerce, Bureau of the Census. The 72,104,000 in the labor force in 1960 represent a 59.2 percent participation rate for the 121,817,000 total population over 16 years of age for that year. By 1980 the total population of this age is projected to increase to 165,473,000. With an increase in labor force participation of 60.4 percent the labor force for 1980 is projected to be 99,942,000.

It is not anticipated, of course, that all of the approximately one hundred million projected to be in the labor force in 1980 will be enrolled in organized programs for training in vocational education at any one time. However, it is reasonable to anticipate that the vast majority of the group at one time or another in their lives, will have participated in some type of organized vocational education.

The problem of those charged with the responsibility of organizing and financing vocational educational programs, is to project annually the target populations to be served in the many different types of vocational education programs. The educator has a difficult role in trying to adjust, change or expand traditional programs or to design new ones to meet temporary or long range needs. He is told on the one hand to use the estimates of industry demands for manpower to determine the amount and kind of vocational and technical education to provide. On the other hand he is expected to use estimates of social demands for education from which to gauge the need for programs *and* the expected participation. Social demands sometimes are for programs of education which do not include vocational preparation. Such demands often have a very negative effect on participation in vocational education by the school age population.

The impact of social demands for vocational education on the percent of the target population participating in vocational training is difficult to estimate. Many other factors, such as political decision making at the federal, state and local levels, the cost and benefits of vocational education programs will affect the numbers provided for in organized programs.[19] Social

TABLE 5-2
TOTAL POPULATION,[1] TOTAL LABOR FORCE, AND LABOR FORCE PARTICIPATION RATES, BY SEX AND AGE, 1960 TO 1980[1]

(Numbers in thousands)

Sex and age	Total population, July 1					Total labor force, annual averages					Labor force participation rates, annual averages (percent)				
	Actual		Projected			Actual		Projected			Actual		Projected		
	1960	1965	1970	1975	1980	1960	1965	1970	1975	1980	1960	1965	1970	1975	1980
BOTH SEXES															
16 years and over	121,817	131,184	141,713	153,627	165,473	72,104	77,177	84,617	92,183	99,942	59.2	58.8	59.7	60.0	60.4
MALE															
16 years and over	59,420	63,608	68,485	74,127	79,824	48,933	50,946	54,960	59,356	64,061	82.4	80.1	80.3	80.1	80.3
16 to 19 years	5,398	6,880	7,587	8,302	8,510	3,162	3,831	4,280	4,664	4,824	58.6	55.7	56.4	56.2	56.7
20 to 24 years	5,553	6,872	8,621	9,609	10,394	4,939	5,926	7,466	8,331	9,064	88.9	86.2	86.6	86.7	87.2
25 to 34 years	11,347	11,091	12,540	15,557	18,285	10,940	10,653	12,063	14,966	17,590	96.4	96.0	96.2	96.2	96.2
35 to 44 years	11,878	11,962	11,303	11,068	12,496	11,454	11,504	10,930	10,703	12,084	96.4	96.2	96.7	96.7	96.7
45 to 54 years	10,148	10,740	11,289	11,379	10,757	9,568	10,131	10,725	10,810	10,219	94.3	94.3	95.0	95.0	95.0
55 to 64 years	7,564	8,131	8,759	9,287	9,776	6,445	6,768	7,388	7,795	8,184	85.2	83.2	84.3	83.9	83.7
55 to 59 years	4,144	4,421	4,794	4,990	5,296	3,727	3,929	4,339	4,421	4,793	89.9	88.9	90.5	90.5	90.5
60 to 64 years	3,420	3,710	3,965	4,297	4,480	2,718	2,839	3,049	3,279	3,391	79.5	76.5	76.9	76.3	75.7
65 years and over	7,530	7,932	8,385	8,923	9,606	2,425	2,131	2,108	2,087	2,096	32.2	26.9	25.1	23.4	21,8
65 to 69 years	2,941	2,871	3,137	3,362	3,651	1,348	1,209	1,142	1,136	1,143	45.8	42.1	36.4	33.8	31.3
70 years and over	4,590	5,061	5,248	5,561	5,955	1,077	922	966	951	953	23.5	18.2	18.4	17.1	16.0
FEMALE															
16 years and over	62,397	67,578	73,228	79,500	85,649	23,171	26,232	29,657	32,827	35,881	37.1	38.8	40.5	41.3	41.9
16 to 19 years	5,275	6,681	7,375	8,081	8,221	2,061	2,519	2,908	3,201	3,286	39.1	37.7	39.4	39.6	40.0
20 to 24 years	5,547	6,796	8,483	9,446	10,230	2,558	3,375	4,267	4,865	5,380	46.1	49.7	50.3	51.5	52.6
25 to 34 years	11,605	11,267	12,680	15,582	18,232	4,159	4,336	4,894	6,124	7,347	35.8	38.5	38.6	39.3	40.3
35 to 44 years	12,348	12,470	11,694	11,391	12,771	5,325	5,724	5,555	5,582	6,386	43.1	45.9	47.5	49.0	50.0
45 to 54 years	10,438	11,304	12,071	12,195	11,437	5,150	5,714	6,675	7,024	6,805	49.3	50.5	55.3	57.6	59.5
55 to 64 years	8,070	8,835	9,741	10,558	11,279	2,964	3,587	4,267	4,826	5,337	36.7	40.6	43.8	45.7	47.3
55 to 59 years	4,321	4,736	5,252	5,577	5,983	1,803	2,209	2,705	3,023	3,362	41,7	46.6	51.5	54.2	56.2
60 to 64 years	3,749	4,099	4,489	4,981	5,296	1,161	1,378	1,562	1,803	1,975	31.0	33.6	34.8	36.2	37.3
65 years and over	9,115	10,225	11,186	12,248	13,481	954	976	1,091	1,205	1,340	10.5	9.5	9.8	9.8	9.9
65 to 69 years	3,347	3,427	3,755	4,122	4,580	579	585	653	717	797	17.3	17.1	17.4	17.4	17.4
70 years and over	5,768	6,798	7,431	8,126	8,901	375	391	438	488	543	6.5	5.8	5.9	6.0	6.1

[1] Table taken from **Manpower Report of The President**, Washington, D. C.: U. S. Govt. Printing Office, April, 1968, p. 298.

Source: Population data from the U. S. Department of Commerce, Bureau of the Census, Current Population Reports, Series P-25: for 1960, No. 241; for 1965, unpublished estimates; for 1970-80, No. 286, Series B. All other data from the U. S. Department of Labor, Bureau of Labor Statistics.

demands reflect social values about employment status, the job one holds rather than the work one can do. Social demands also affect short range and long range consumer preferences for goods and services which in turn affect industrial demands for manpower.[20] To further complicate decision making for the educator, technological advances which obsolesce some occupations and in turn create new jobs make it imperative that program planning and budgeting for vocational education remain flexible.[21]

Technological changes have in the past two decades seriously diminished the demand for unskilled labor according to Fabricant.[22] Thus, the make-up of the target population also changes as the work force makes changes to adjust. The frequency of occupational changes is another important variable in the manpower adjustment process and is an element which must be provided for in vocational preparation programs.

Garfinkle studied the work life and job changing expectancies of male workers in 1960-61.[23] The summary of his study is reflected in Table 5-3. The data in this table show clearly that jobs change throughout the work life of the worker. Each change may require further education.

People may change jobs for a variety of reasons. Some because of job dislocation due to automation or a change in product or material processing. Some may initiate this change themselves in order to get a better job. More and more job changes

TABLE 5-3

WORK LIFE AND JOB CHANGING EXPECTANCIES FOR MALES 1960-61

Age	*Work Life Expectancy*	*Expected Number of Job Changes During Remaining Work Life*	*Job Life Expectancy*
20 - 24	42.6	6.6	5.6
25 - 34	37.9	4.8	6.5
35 - 44	28.6	2.7	7.7
45 - 54	19.7	1.4	8.1
55 - 64	11.9	0.6	7.2
65 and over	6.3	0.2	4.7

SOURCE: S. H. Garfinkle, "Job Changing and Manpower Training," Manpower Report 10, U.S. Dept. of Labor, Office of Manpower, Automation and Training, Washington, D. C.: June, 1964.

require additional training or retraining. The need for training may arise at all ages throughout the working life of men. Many of the same factors apply to women in the work force also. Some educators, other than vocational educators, feel that the ways tools and materials can be substituted for each other in a variety of uses should be a concept introduced in the elementary grades. Even for these grade levels, tools should take on their proper meaning as amplifiers of human capacities and implementers of human activity.[24]

Another study which reflects changes in the age characteristics and the changes in life expectancy was made by Wolfbein.[25] These factors when combined with the frequency of job changes also affects vocational education content, methods and participants. He feels that "Next to life expectancy there is no more vital index of a nation's social and economic welfare than the expectation of *working life*. Dealing as it does with the duration of that part of the total life span devoted to working, it reflects the influence of a host of key factors, such as the age at which the young enter the labor market, the time they spend in education and training, and the age at which people exit from the work force." The experience in this country is reflected in Table 5-4.

TABLE 5-4

LIFE EXPECTANCY AND WORK EXPECTANCY AT BIRTH IN THE U. S. 1900-1965

	MEN			*WOMEN*		
Year	*Life Expectancy*	*Working Life Expectancy*	*Years Outside Labor Force*	*Life Expectancy*	*Working Life Expectancy*	*Years Outside Labor Force*
1900	48.2	32.1	16.1	50.7	6.3	44.4
1940	61.2	38.3	22.9	65.9	12.1	53.8
1950	65.5	41.9	23.6	71.0	15.2	55.8
1955	66.5	42.0	24.5	72.9	18.2	54.7
1965	67.5	42.0	25.5	74.4	18.7	53.8

SOURCE: Seymour Wolfbein, "Labor Trends, Manpower and Automation" from *Man in a World at Work*, edited by Henry Borow. Atlanta: Houghton-Mifflin Co., 1964, p. 156.

*1965 figures added from census reports.

The result of the increase in the length of the life span has been added years in the work force as workers, additional time spent outside the work force in education (preparation) and also added years in retirement, especially for men. The same is true for women plus the time they leave the work force for marriage and motherhood.

More people are investing more time in education in the early part of the life span in preparation for full time entry into the work force. The average age of entry of men into the work force is now in excess of 19 years of age. At the turn of the century it was 10 to 15 years of age. Because of the added years of life expectancy, even with the delay in entering the work force, men spend more years working than ever before.

Proportion of Age Groups Now Participating in Vocational Education Programs

According to the National Advisory Council on Vocational Education[26] vocational education has grown significantly in enrollment since the review of the program by the President's Panel of Consultants in 1962. A substantial part of this increase was due to the inclusion of office occupations as vocational education. In the five year period from 1961 to 1966 the enrollment in all types of vocational education (secondary, post secondary and adult) increased from 21.1 persons per 1,000 population to 31.3 per 1,000. In numbers, the increase was from 3,855,564 to 6,070,059.

This increase in enrollment is generally attributed to the increased sociological and economic demand for vocational education and, to the impact of federal legislation designed to better serve the vocational education needs of more people. The general purpose of most recent federal legislation is to break the cycle of low educational achievement, which leads to unemployment which leads to poverty.[27]

In 1966 the Office of Education reported the percent of the total enrollment in each vocational education instruction area enrolled in secondary programs, post-secondary programs, adult programs and programs for persons with special needs. Table 5-5 identifies the enrollment and the percentage of enrollment by level and instructional category for fiscal year 1966.[28]

TABLE 5-5

VOCATIONAL EDUCATION ENROLLMENT SUMMARY, BY OCCUPATIONAL CATEGORY AND EDUCATIONAL LEVEL, FISCAL YEAR 1966

Educational Category	*Total Enrollment*	*Secondary*		*Post Secondary*		*Adult*		*Special Needs*		*Percent of Total Voc. Ed. Enroll.*
		Number	*Per Cent*	*Number*	*Per Cent*	*Number*	*Per Cent*	*Number*	*Per Cent*	
Agriculture	907,354	510,279	56.2	5,987	0.7	390,388	43.0	700	0.1	15.0
Distributive	420,426	101,728	24.2	15,833	3.8	301,116	71.6	1,749	.4	6.0
Health Occup.	83,677	9,793	11.7	36,496	43.6	37,065	44.3	323	.4	1.4
Home Econom.	1,897,670	1,280,254	67.5	2,652	.1	602,363	31.7	12,401	.6	31.2
Office Occup.	1,238,043	798,368	64.5	165,439	13.4	271,149	21.9	3,087	.2	20.4
Technical	253,838	28,865	11.1	100,151	39.5	124,730	49.1	92	.4	4.2
Trades & Ind.	1,269,051	318,961	25.1	115,539	9.1	803,901	63.3	30,650	2.4	20.9
TOTAL	6,070,059	3,048,248	50.2	442,097	7.3	2,530,712	41.7	49,002	0.8	100.00

From: General Report of Advisory Council on Vocational Education, 1968 Washington, D. C., U. S. Office of Education, G.P.O. page 18.

This total 1966 enrollment in all types of organized vocational education was 6,070,059. Of this, 50.2 percent was in the secondary schools, 7.3 percent in post secondary, 41.7 percent at the adult level and .8 percent at the level of people with special needs.

Table 5-6 shows the seven occupational categories of job preparation supported by federal funds. In agriculture 56.2 percent of those enrolled were at the secondary level and 42.9 percent at the adult level. Less than one percent (.8) were enrolled at the post-secondary level and only .1 of one percent were enrolled as people with special needs. In home economics and office occupations the largest enrollments were also at the secondary level. At the post secondary level only the health occupations and technical education were enrolling sizable percentages.

TABLE 5-6

PERCENTAGE ENROLLMENTS BY EDUCATIONAL LEVEL AND OCCUPATIONAL CATEGORIES, FISCAL YEAR 1966

Level	*Agriculture*	*Distributive*	*Health*	*Home Economics*	*Office*	*Technical*	*Trades & Industry*	*Total*
Secondary	56.2	24.2	11.7	67.8	64.5	11.4	25.1	50.1
Post Secondary	.8	3.8	43.6	.1	13.4	39.5	9.1	7.2
Adult	42.9	71.6	44.3	31.4	21.9	49.1	63.4	41.7
Special Needs	.1	.4	.4	.7	.2	—	2.4	1.0
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

From: General Report of Advisory Council on Vocational Education 1968. Washington, D.C.: U. S. Govt. Printing Office, Page 19.

All seven categories were enrolling a significant percentage of adults. Programs for persons with special needs was a new level reported for the first time in 1965. This level received increased emphasis in the 1968 amendments to the Vocational Education Act and the numbers provided for in such programs with doubtless increase.

Distributive occupation's largest enrollment is at the adult level with 71.6 percent. Health and technical occupations had their largest enrollments at the post secondary and adult levels. Trades and industry's largest enrollment was also at the adult level with 63.4 percent.

The 3,048,248 total enrollment figure in secondary schools represents 25.4 percent of the total of 11,987,869 enrolled in grades 9-12 reported for fiscal year 1966. Of these only agriculture, home economics and trades and industry reported any enrollments under grade 9 and these were less than one half of one percent for agriculture and trades and industry and 1.8 percent for home economics.

Present technological, sociological and economic trends indicate clearly that by 1980 a far higher percentage of the labor force will be enrolled in vocational programs at the post-secondary and adult levels. Furthermore, vocational education will undoubtedly be a part of the program of compensatory education to meet the special needs of the disadvantaged. It will take far more extensive studies than are presently available to identify with some degree of accuracy, the target populations for the various vocational programs which will need to be provided by 1980. Further research is needed for the purpose of doing better long range planning for vocational education than can be done at the present time.

The American Vocational Association[29] has estimated that the enrollment in all phases of vocational education, secondary, post-secondary and adult will total approximately 14,600,000 by 1975. This is more than double the number enrolled in 1966. The Association estimated that the enrollment will increase by 5,000,000 between 1970-75. What will be the enrollment in vocational education by 1980? This is difficult to estimate, however, if the need for vocational education is reasonably well met in 1980, the number enrolled will undoubtedly be much greater than the number estimated by the American Vocational Association to be enrolled by 1975.

THE FEDERAL GOVERNMENT AND VOCATIONAL EDUCATION

After a decade of study and discussion, spearheaded by the National Society for the Promotion of Industrial Education, the

United States Congress in 1917 enacted the Smith-Hughes Act providing federal aid to the states for vocational education of less than college grade. Much of the debate which preceded the enactment of this law occurred during World War I and of course was influenced by the nation's growing manpower requirements. Also at this time there was concern about child labor and many states were enacting laws restricting the employment of children. High school education was changing from a purely college preparatory program to a broader program designed to serve all youth. Only a small percent of the expanding high school graduating classes during the 1920's entered college. A much larger number sought full-time employment upon graduation from high school. These facts concerning employment conditions influenced not only the provisions of the Smith-Hughes Law but also the programs developed under it.

Before examining the problems and issues related to tax supported vocational education in the 1970's, it is useful to review briefly the precedents established by the Smith-Hughes Law and its subsequent amendments.

Federal Definition of Vocational Education

The program of drawing a sharp distinction between vocational education and general education arose primarily because federal funds could be used only for the former as defined by the federal government. Prior to the enactment of the Smith-Hughes Law many schools had introduced courses in domestic science, woodshop, etc. before federal funds were available. General skills such as reading, writing, and arithmetic were essential for an increasing number of vocations but were not generally considered as vocational education.

Early in the development of the Smith-Hughes program the term vocational education was generally restricted to courses developed exclusively for a specific occupation. The vocational education curriculum was designed to provide a specific set of skills for an existing vocation. Under these conditions basic skills in reading, writing, and arithmetic were considered to be part of general education. And so were general shop courses classified as industrial arts. The fundamental idea underlying this distinction is illustrated in typing instruction. The first course in typing is usually regarded as general education, while the second course in typing is often classified as vocational education.

These distinctions would be unnecessary if it were not for the Smith-Hughes Law. It was necessary to distinguish between vocational education classes and general education classes in order to administer the federal aid program for vocational education.

Recent changes in the federal program included in the Vocational Education Acts of 1963 and 1968 have not only authorized substantial increases in funds but have also broadened the purposes of the federally-financed program in vocational education. The Advisory Council on Vocational Education in its report prepared for the subcommittee on Education of the Committee on Labor and Public Welfare of the United States Senate issued in March 1968, suggested a much broader definition of vocational education:

> 1. Vocational education cannot be meaningfully limited to the skills necessary for a particular occupation. It is more appropriately defined as all of those aspects of educational experience which help a person to discover his talents, to relate them to the world of work, to choose an occupation, and to refine his talents and use them successfully in employment. In fact, orientation and assistance in vocational choice may often be more valid determinants of employment success, and therefore more profitable uses of educational funds, than specific skill training.
>
> 2. In a technology where only relative economic costs, not engineering know-how, prevent mechanization of routine tasks, the age of "human use of human beings" may be within reach, but those human beings must be equipped to do tasks which machines cannot do. Where complex instructions and sophisticated decisions mark the boundary between the realm of man and the role of the machine, there is no longer room for any dichotomy between intellectual competence and manipulative skills and, therefore, between academic and vocational education.
>
> 3. In a labor force where most have a high school education, all who do not are at a serious competitive disadvantage. But at the same time, a high school education alone cannot provide an automatic ticket to satisfactory and continuous employment.

> Education cannot shed its responsibilities to the student (and to society in his behalf) just because he has chosen to reject the system or because it has handed him a diploma. . . . It is not enough to dump the school leaver into a labor market pool. . . . society must provide him a ladder, and perhaps help him to climb it.
>
> 4. Some type of formal occupational preparation must be a part of every educational experience. Though it may be well to delay final occupational choice until all the alternatives are known, no one ought to leave the educational system without a salable skill. In addition, given the rapidity of change and the competition from generally rising educational attainment, upgrading and remedial education opportunities are a continual necessity. Those who need occupational preparation most, both preventive and remedial, will be those least prepared to take advantage of it and most difficult to educate and train. . . .
>
> 5. The objective of vocational education should be the development of the individual, not the needs of the labor market. One of the functions of an economic system is to structure incentives in such a way that individuals will freely choose to accomplish the tasks which need to be done. Preparation for employment should be flexible and capable of adapting the system to the individual's need rather than the reverse.[30]. . .

These statements are quoted extensively because they describe clearly the broadened purposes of the 1963 and 1968 Vocational Education Acts which pave the way for a new concept of vocational education supported in part from federal funds.

Grade Placement of Vocational Education Courses

The distinction between vocational and general education is related to the age of students receiving the instruction. When the Smith-Hughes Law was enacted in 1917, primary emphasis was placed upon vocational education in the eleventh and twelfth grades since few students sought "non-college grade" education after high school graduation. Moreover, at that time, occupational opportunities for 18-year-old youths were common.

During recent years there has been a tendency to shift vocational education programs to the post-high school period, reflecting the growth of junior colleges and other post-secondary institutions of less than college grade.

The effort to make vocational education opportunities available to all age groups and to out-of-school youth is reflected in the Declaration of Purpose included in the Vocational Education Act of 1968:

> Sec. 101. It is the purpose of this title to authorize Federal grants to States to assist them to maintain, extend, and improve existing programs of vocational education, to develop new programs of vocational education, and to provide part-time employment for youths who need the earnings from such employment to continue their vocational training on a full-time basis, so that persons of all ages in all communities of the State — those in high school, those who have completed or discontinued their formal education and are preparing to enter the labor market, those who have already entered the labor market but need to upgrade their skills or learn new ones, those with special educational handicaps, and those in postsecondary schools — will have ready access to vocational training or retraining which is of high quality, which is realistic in the light of actual or anticipated opportunities for gainful employment, and which is suited to benefit from such training.

The foregoing declaration of Congressional intent calls for "ready access" to vocational education for all who can benefit from instruction. Formerly, vocational education courses tended to be restricted by existing employment opportunities to a few selected occupations. In the future, schools are expected to broaden their program to serve more people in all age groups. Vocational programs are to be related to anticipated vocational opportunities and to the needs of students as well as to existing occupational opportunities.

Comprehensive Planning and Evaluation of Vocational Education Programs

The special role of vocational education in the national economy was recognized in the Smith-Hughes Act of 1917 which created a federal board for vocational education composed of the Secretary of Agriculture, the Secretary of Commerce, the

Secretary of Labor, the U. S. Commissioner of Education, and three citizens representing industry, agriculture, and labor. This composition of the federal board for vocational education was intended to provide a broad basis for planning and development of vocational education programs.

The Vocational Education Act of 1963 reflects a concern that established vocational education programs may lack sensitivity to changes in the labor market and to the needs of various segments of the population. To prevent this weakness from recurring more specific provision was made for periodic review and evaluation of the entire program. Reflecting this concern, the Vocational Act of 1963 provided for an Advisory Council on Vocational Education which was created in November 1966 to review the administration and status of vocational education programs conducted under the 1963 Act and other acts and to make recommendations for the improvement of vocational education.

The Council reported its findings in January of 1968 and its recommendations formed the basis for significant changes included in the Vocational Education Act of 1968. Among these changes is a requirement for a continuing National Advisory Council on Vocational Education. The composition of the National Council and its legally prescribed duties indicate clearly the broadened intent of the new act:

The Council shall include persons—

> (A) representative of labor and management, including persons who have knowledge of the semi-skilled, skilled, and technical employment in such occupational fields as agriculture, home economics, distribution and marketing, health, trades, manufacturing, office and service industries, and persons representative of new and emerging occupational fields,
>
> (B) familiar with manpower problems and administration of manpower programs,
>
> (C) knowledgeable about the administration of State and local vocational education programs, including members of local school boards,
>
> (D) experienced in the education and training of handicapped persons,

(E) familiar with the special problems of needs of individuals disadvantaged by their socio-economic backgrounds,

(F) having special knowledge of postsecondary and adult vocational education programs, and

(G) representative of the general public who are not federal employees, including parents and students, except that they may not be representative of categories.

(A) through (F), and who shall constitute no less than one-third of the total membership.

The National Council's duties include:

(A) advising the Commissioner concerning the administration of, preparation of general regulations for, and operation of, vocational education programs;

(B) reviewing the administration of operation of vocational education programs under this title, including the effectiveness of such programs in meeting the purposes for which they are established and operated; and

(C) conducting independent evaluations of programs carried out under this title and publishing the results thereof.

The National Council is required to meet at least four times annually, and is authorized to engage such technical assistance as may be required to carry out its functions.

To insure more effective planning and evaluation of vocational education at the state level, each state which receives federal funds under the Vocational Education Act of 1968 is required to establish a State Advisory Council which has duties somewhat similar to those of the National Council and is broadly representative of various groups within the state. Each State Advisory Council is required to evaluate its state program, to project needs, and to recommend improvements in vocational education.

Emphasis upon comprehensive long-range planning is also found in new requirements for state plans for vocational education which must include long-range plans which identify and project vocational education needs three to five years ahead and which set forth programs of vocational education designed to meet the vocational education needs of the potential students in the state.

Administrative Relationships and Procedures

The Smith-Hughes Act created a new pattern of administrative and fiscal relationships between the federal government and the states in the field of education. Specifically, the Smith-Hughes Act:

1. Established a State plan concept of federal participation in public school support;

2. Established a rigid categorical system in which federal funds for vocational education were limited to programs for specific types of occupations;

3. Restricted the use of federal funds to schools under public supervision and control;

4. And required states to exercise greater control of locally administered vocational education to assure adequate quality of instruction.

The Vocational Education Acts of 1963 and 1968 not only broadened the definition of vocational education and established more active advisory groups at the state and federal level, but also required state plans to include long-range projections of vocational education programs. To insure broad planning for vocational needs of youth and adults, each state is required to develop:

> . . . a long-range program plan . . . for vocational education in the State, which program plan (A) has been prepared in consultation with the State Advisory Council, (B) extends over such period of time (but not more than five years or less than three years), beginning with the fiscal year for which the State plan is submitted, as the Commissioner deems necessary and appropriate for the purposes of this title, (C) describes the present and projected vocational education needs of the State in terms of the purposes of this title, and (D) sets forth a program of vocational education objectives which affords satisfactory assurance of substantial progress toward meeting the vocational education needs of the potential students in the State;
>
> . . . sets forth an annual program plan, which (A) has been prepared in consultation with the State advisory

> council, (B) describes the content of, and allocation of federal and state vocational education funds to programs, services, and activities to be carried out under the state plan during the year for which federal funds are sought (whether or not supported with federal funds under this title), (C) indicates how and to what extent, such programs, services, and activities will carry out the program objectives set forth in the long-range program plan provided for in paragraph (4), and (D) indicates how, and to what extent, allocations of federal funds allotted to the state will take into consideration the criteria set forth in the state plan pursuant to paragraph (6), and (E) indicates the extent to which consideration was given to the findings and recommendations of the state advisory council in its most recent evaluation report submitted pursuant to section 104;

The 1968 Act also requires the Commissioner to reserve an amount not to exceed $5,000,000 in any fiscal year for transfer to the Secretary of Labor to finance national, regional, state and local studies and projections of manpower needs for the guidance of federal, state, and local officials and advisory councils.

Thus, with broadly representative advisory councils, with projections of manpower needs, with mandates to provide vocational education for disadvantaged and physically handicapped individuals, with five-year program plans for local educational agencies and for each state, the Vocational Education Act of 1968 has ushered in a new era in vocational education. Clearly the U. S. Congress has expressed the national concern for vocational education and has recognized its inherent relationship to full employment.

These changes in the federal vocational education program focuses attention upon the federal-state-local partnership in education. In no other educational program are the three levels of government so intimately related in an educational partnership. And in no other educational program is it more essential that the respective roles of each partner be clarified.

Each partner has a distinctive role and concern for the effective operation of the vocational education program. The federal government has accepted the responsibility for economic planning and for full employment. In addition, it has accepted responsibility for aiding disadvantaged youth and adults and for assisting in the re-education of workers necessitated by the rapid obsolescence of vocational skills. Thus, the federal concern is primarily for vocational education as a means of accomplishing full employment and strengthening the national economy.

State departments of education have played a key role in the administration and supervision of federally-financed vocational education since 1917. With the expansion of the federal programs in 1963 and 1968, they are called upon to play a more important role in planning, financing, and evaluating vocational education programs.

Local school systems are concerned about the appropriateness of various vocational education programs for their communities. They must solve the increasingly difficult problems of finding space, teachers, and instructional equipment for vocational education programs, often without adequate lead time. They must maintain an appropriate balance between vocational and general education, despite complex criteria for ascertaining which courses are reimbursable under the federal program.

With all three partners playing distinctive but independent roles, there is a danger that these roles may become conflicting rather than complementary. To insure an effective partnership there must be mutually acceptable guiding principles for assigning responsibilities to each partner. The intergovernmental relationships inherent in this problem are of course reflected in the grant-in-aid procedures for financing vocational education.

Implications for Financing Vocational Education

The broadened program contemplated by the 1968 Act calls for a new look at the financial arrangements for vocational education. As long as the federal contribution was intended to stimulate a limited number of additional programs to meet existing industrial manpower requirements the grant-in-aid procedure could be relatively simple. The problem now is to develop a plan for financing a much broader program on a continuing basis with funds derived from three levels of government.

In developing such a finance program it will be necessary to apply to the vocational education program better measures of need and ability of states and local school districts. Since states normally provide support for students in vocational education classes on the same basis as they provide for students in general education classes, it will also be necessary to develop more precise measures of the excess cost of vocational education in comparison with general education.

The Vocational Education Act of 1968 requires a complete reexamination of state plans for financing vocational education. State plans are required to set forth in detail the policies and procedures for the allocation of funds for each of the population groups identified in the law, including out-of-school youth and adults, disadvantaged persons, handicapped persons and persons who have entered the labor market who need additional training. This is a new requirement of the 1968 Act.

The Act also requires that the state board shall give due consideration to the relative ability of the local educational agencies to provide the resources necessary to meet the vocational education needs within their service areas. Specifically, the uniform matching ratio approach, used in many states in the past, is ruled out by this requirement.

In addition, the 1968 Act requires a more precise analysis of the costs of various vocational education programs, so that the "excess cost" of vocational education can be identified.

The "excess cost" of vocational education ordinarily is the result of two factors: 1) less than average class size and 2) more than average supply and equipment requirements. When the new five-year plans have been developed including cost estimates, it will be possible to estimate the "excess cost" of vocational education programs more accurately.

Until this information is available, it is useful to estimate the "excess cost" of vocational education for general planning purposes by multiplying the average cost per secondary school student by a class size factor and adding to this a supply and equipment factor. The class size factor is obtained by dividing the average class size for general education courses in secondary schools by the average class size for vocational education courses. This quotient is then multiplied by the percent of the current cost of secondary education which is affected primarily by class size. In addition to teachers' salaries, most of the indirect costs are proportional to the number of teachers employed. On this basis it may be assumed that 90 percent of the current cost of secondary education is subject to the class size factor. If the typical class size in secondary schools is 25 for general education classes and the average class size for vocational classes is 20, the class size factor for vocational education would be 25 divided by 20 times 90 percent or 1.125.

The remaining 10 percent of the current cost per student is unaffected by class size but is affected by additional costs for equipment outlays, for equipment maintenance, and for instructional supplies. Assuming that the requirements for instructional supplies and equipment is 5 percent of the current expenses for regular classes and twice as great, 10 percent, for vocational classes, it would be necessary to add .15 to the class size factor derived above. Thus, for general planning purposes it may be assumed that vocational education classes cost 1.2 or 1.3 times the cost per student for general education classes.

The appropriateness of this factor depends upon the assumptions described above, which may not be entirely valid. Obviously some vocational classes, such as the second year of typing, do not require small classes except in small high schools. Similarly, work experience programs require a minimum of supplies and equipment but do require funds for the travel of the instructor. For this reason the use of a factor such as 1.2 or 1.3 is of limited value even for long-term projection purposes.

Both the accurate projection of the cost of vocational education and the development of a satisfactory finance plan requires additional information. Fortunately much of the required information will be generated by the long-term planning process required by the Vocational Education Act of 1968. Not only will these plans project the costs of comprehensive programs of vocational education, but in the process a more precise definition of vocational education will emerge.

The National Educational Finance Project will draw heavily upon new information generated under the 1968 Vocational Education Act. In addition, school finance concepts developed over the years for general education will be applied to financing vocational education. More specifically the project will seek answers to such questions as:

1. Do the population age groups used for the apportionment of federal vocational education funds reflect total program costs for meeting vocational education needs in each state? Are vocational education programs necessarily longer and more costly in some states than in others?

2. Are the formulas used for the apportionment of federal vocational education funds appropriately related to appropriation categories and to meaningful program categories? Does each separate appropriation have a clearly identifiable apportionment formula and is it clearly related to a sub-program of vocational education?

3. Are the "allotment ratios" based upon the per capita income for each state, realistic in the light of program costs? Are they appropriately related to matching requirements and to the fiscal capacities of the states? Should federal support for vocational education be based upon the assumption of a greater percentage of the overall cost of vocational education by the federal government?

4. Are the "fiscal incentives" inherent in the federal aid program for vocational education contributing effectively to the basic purposes of the program?

5. Are cost accounting procedures uniformly followed so that accurate and valid information can be obtained concerning program and sub-program expenditures?

6. Have states developed plans for coordinating the use of state school funds with federal funds for vocational education? Are state plans for distributing federal vocational education funds to local school districts based upon sound principles?

7. What would be the consequences of alternative models for financing vocational and technical education which vary in the percentages of revenue obtained from state, federal and local sources?

A search for answers to these questions is timely, and urgent, both to facilitate the implementation of an expanded program of vocational education and to develop effective patterns of cooperation among the three levels of government in the field of education.

FOOTNOTES

1. This section of this chapter dealing with the *parameters of vocational* education was written by Edwin L. Kurth, a specialist in vocational education and the section on the *Federal Government and Vocational Education* was written by Erick L. Lindman, a specialist in educational finance.

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CHAPTER 6

Dimensions of Need for Community Junior College Education

JAMES L. WATTENBARGER

Evidence has been presented in other chapters of this book which establishes beyond question that education today is vital not only for the welfare of the individual but also for the survival of a modern civilization existing under a system of popular government. All fifty states now make tax supported education available for all children enrolled in grades 1-12. However not all states provide tax supported education for all children of kindergarten and nursery school age. Neither do all states provide tax supported community junior colleges where all students may live in their own communities and receive that type of education. In chapter 2, it was pointed out that the kindergarten had been introduced into this country almost one hundred years ago and that their benefits had been well established. Nevertheless, today only about two thirds of the children of kindergarten age now have kindergarten education available. The worth of community junior college education was well established early in this century. However, it was not until the latter half of the twentieth century that a serious attempt has been made on a national basis to expand community junior college education. But, as will be shown later in this chapter, most states still do not make community junior college education generally available.

It should not be assumed from the foregoing statement that interest in the concern for continued educational development beyond the high school has been a largely neglected area in

American education. Increasing emphasis has been placed on this level of education during recent years. The early establishment and partial support by public agencies of the colonial colleges, the events leading up to the famed Dartmouth Case, the Morrill Act, as well as numerous individual legislative acts and court decisions in the growing states of the United States, provide historical basis for the premise that the American public has always been willing to provide educational opportunity to the citizens of the country up to any level which may be needed.

This attitude is currently being reflected in the Congress by federal legislation which provides support for "higher education" as well as for elementary and secondary schools. A bill introduced in the Senate during the 89th Congress included a section which provided for establishing a "Universal Educational Opportunity Commission" — with emphasis placed upon the "post secondary level". The function of this proposed commission was to develop a plan (or alternative plans) for "providing universal educational opportunity at the post secondary level." The final version of this bill as passed by the Senate on October 1, 1968, changed this section to call upon the President to submit to Congress by December 31, 1969, "proposals relative to the feasibility of making available a post-secondary education to all young Americans who qualify and seek it." The Congress which opened in January, 1969, has witnessed the introduction of the Williams-Thompson bill which would provide support from Federal funds for the development of community junior colleges.

In addition to the activity at the federal level all states provide some type of support for one or more areas of post high school education. Some states provide area vocational-technical schools, technical institutes and/or community colleges; other states provide branches of established universities, adult schools, extension campuses, or other types of educational centers designed to serve one or more areas of the variety of post high school educational needs. While a few states have focused their entire effort upon developing comprehensive community colleges, all states provide one or more institutions to serve this level of education even though some of them admittedly have very limited functions.

A NEW LEVEL OF EDUCATION

While there is need to examine the total range of requirements for post high school education, in this paper attention will be focused primarily upon that level which appears likely to become a universal opportunity within the reasonable future —the community centered programs of less than baccalaureate degree level. While most considerations of community centered post high school education deal with it in terms of a defined institution, it is important that one should begin to think of this opportunity as a *level* of education. Just as there exists many organizational structures for elementary education, as well as a number of structures for the secondary grade levels, there is also a variety of institutions which may be used to provide education at the post high school level.

Grades 13 and 14 are often emphasized in discussing post high school education. The most common means for providing this continuing expansion of educational opportunity in the majority of states, however, is the community junior college. This institution has adequately demonstrated that it can provide the variety of educational opportunities usually considered necessary at this level. The community junior college has become an accepted segment of universal educational opportunity programs in many states and is developing rapidly in the remaining states. In complement to or in association with vocational technical centers, this type of institution is meeting the post high school needs.

Growth of Community Junior Colleges

In 1968, there were more than 950 community junior colleges serving almost 2,000,000 students. At least 700 of these were public institutions enrolling more than 90 percent of the total number of students. Several states, e.g., California, Florida, Illinois, and New York, have comprehensive plans for community junior college development which are almost completed. These plans envision the establishment of a system of community junior colleges which will be readily accessible to all persons living within the state. Full implementation of these plans will place opportunity for the level of post high school education within the reach of almost everyone. The pattern already established in California and Florida may well become the accepted procedure in most of the fifty states. In 1967 one in every 62 persons in Florida was a student in at least one course in the community junior colleges of the state. Similar ratios for California and New York were 1:32 and 1:115 respectively. While other states trail this ratio by a considerable degree, one may safely predict that a relationship somewhat near Florida's 1:62 ratio is a reasonable expectation in the foreseeable future.

If this were to happen by 1975 community colleges would need space to accommodate 3,700,000 students — 4,000,000 by 1980, and 4,850,000 by 1990. The magnitude of this increase would result in doubling the number of junior college students within a seven year period. This will not be possible unless the present rate of providing for junior college education is accelerated. More than fifty-four new colleges located in twenty-three states opened in 1968. These new institutions provided space for about 50,000 new students, leaving a large gap between the potential number of students who should be served and the number who actually will be served.

Experience has indicated that the annual increase in community junior college enrollment over the past few years has ranged from 10 percent to as high as 25 percent over the previous year. The American Association of Junior Colleges in its directory has assumed that an annual increase of 12 percent per year will occur over the next few years.[1] This assumption is defensible in light of the Florida experience although it may prove to be conservative. In any case, the data shown in Tables 6-1 and 6-2 illustrate that if the assumed annual rate of increase of 12 percent does prevail, the country as a whole will reach the Florida ratio prior to 1975. In fact, the enrollment in 1975 would be between the present Florida and California ratios.

Variables Which May Influence Future Needs

There are several variables which must be considered in developing an estimate of future needs. Among these are the following:

1. the acceptance of a commitment by the several states to provide support for universal educational opportunity at this level;

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[1] Harper, William A., (Ed.) *1968 Junior College Directory*. Washington, D.C.: American Association of Junior Colleges, 1968. p. 7.

Table 6-1

Projected Number (Thousands) of Community Junior College Students 1970-1990, Based on Present Florida Ratio

Year	*Estimated Population Total**	*CJC Students* (1:62)
1970	208,615	3,400
1975	227,929	3,700
1980	250,489	4,000
1985	274,748	4,400
1990	300,131	4,850

*Source: U. S. Bureau of the Census. *Current Population Reports*, Series P25, Population Estimates No. 381. December 18, 1967. (Series A, p. 6).

2. the comprehensiveness of the programs which are developed in the institutions; and

3. the availability of faculty, facilities, and financial support.

While for the most part there is unquestioned acceptance of the commitment on the part of the states to provide universal opportunity for elementary and secondary education, as yet there is no universal commitment to provide similar access to post high school education. The states generally support a system of higher education which includes four year colleges,

Table 6-2

Projected Number (Thousands) of Community Junior Colleges 1968-1975,Based on an Assumed Annual Rate of Increase of 12 Percent

Year	*Estimated Enrollment*
1968	1,872*
1969	2,097
1970	2,348
1971	2,629
1972	2,944
1973	3,297
1974	3,693
1975	4,138

*Source: American Association of Junior Colleges. *1968 Junior College Directory*. (p.7.)

teachers colleges, and/or universities. Most states also provide some vocational technical education at the post high school level. There is not, however, a general acceptance of the need for and/or the responsibility for providing post high school education on a universal basis. Various screening devices are used to eliminate a portion of the population from continuing their education. Some of these devices are unrelated to ability, interest, or aptitude of the student; others are specifically designed to limit the attendance in collegiate institutions to a specific portion of the population who have demonstrated high academic ability.

Typically, the bulk of the population has not been regarded as needing opportunity for continued education beyond high school. Those who persevere to this level are expected in most instances to pay a portion of the costs from their own resources. This charge in all likelihood effectively eliminates a sizeable number of youth and adults from considering further education. The several states represent a continuum of acceptance of the commitment to provide universal post high school educational opportunity from "hardly at all" to "full acceptance." The extent to which fees are charged and the amount which is assessed is one indication of where any one state may be found on the continuum.

However, the tuition charged to students for continued education beyond the high school is only one indication of the extent of commitment that a state may have accepted for this level of education. Other indications of commitment may be: the percentage of total state expenditures which is allotted to post high school education, and/or the diversity of educational opportunities which are made available to the citizens of a state at this level of education.

A second important variable which will determine the extent of available post high school education is the comprehensiveness of the programs which are developed. Those states which have established comprehensive community colleges represent one extreme of the range of differences which exist between the varied approaches to providing opportunity for post high school education. Those states which have built university branches and/or vocational technical schools represent another extreme. Some states have both types of institutions, resulting in a duplication of effort as well as providing the opportunity for some institutions to shed responsibility for the total task of providing universal opportunity beyond the high school. Still other states provide little opportunity at the post high school level — other than the regular academic courses in a traditional college or university structure.

The students who need education at this level include those who have dropped out of high school before they completed the program as well as those who graduated. The range of educational need extends from illiterates to high school graduates who need new vocational skills or special upgrading in their chosen occupations. The comprehensiveness of education at this level should provide for the particular educational needs of each one and the general educational needs of all.

The third variable which will influence the development of post high school educational opportunity involves a number of factors which differ widely from state to state. The availability of faculty and facilities is almost totally dependent upon financial support. The level of financial support is in turn very dependent upon the acceptance of a commitment to provide this level of education. Each of the states has taken some official action which determines where it stands at this time in regard to this variable (as well as to the other two). As the parameters of need for community junior college programs are described, these variables must be considered and alternatives proposed which are dependent upon the decisions which each state will make regarding the development of such programs at this level of education.

Student Fees

While the basic principle of a commitment to support the provision of free public education through the twelfth grade is generally unquestioned, there remains for some persons serious questions regarding the extent to which there should be public obligation to finance post high school education. Even though most states are establishing and/or enlarging their colleges and universities to accommodate larger numbers of students, at the same time many are increasing fees and other costs to students. These costs will in all likelihood effectively prevent or deter a sizeable group of students from attending post high school institutions and will, therefore, directly affect the number of students who may be expected to enroll.

There are cogent and persuasive arguments which would support the position that post high school education should be free of tuition charges. The curious philosophy in American education which supports the provision of *free* public education through the twelfth grade and no further, and which expects the student to pay a "use" tax for any education he receives beyond that point, is not defensible on rational grounds.

The costs borne by students are more than tuition fees. Foregone income, living expenses, transportation costs, books and supplies — all of these add to the total cost of higher education. This total cost may be the most important determinant in a young person's decision whether or not to continue his education. If tuition is prohibitive it may be the "last straw," but it still is only one of a number of items of cost which the student must consider.

The alternatives to charging fees to students include financial support from taxation in lieu of fees, scholarships, and even direct payments for attending school (such as the G. I. Bill payments). The effect of expanding post high school educational opportunity at least to this extent deserves consideration.

THE EDUCATION PROGRAMS OF THE COMMUNITY JUNIOR COLLEGE

Continued education beyond the high school is most often defined as a "college" education. This type of education, suitable in actual practice for a minor portion of the total population, usually consists of advanced and specialized study in the disciplines of the liberal arts and sciences. Students are provided opportunities to continue to study in depth, areas of human knowledge, which they began studying in elementary and high school. The traditional liberal arts including English, social science, mathematics, biological and physical sciences, humanities, philosophy, foreign languages, and similar subject disciplines form well ordered taxonomies of man's knowledge. Programs of "general education" are devised to integrate special areas of knowledge or to place special disciplines in newly designed juxtapositions. In addition to this emphasis upon general education other areas of knowledge are developed into a sequence of learning experiences designed to provide individuals a way of learning "more and more about less and less." The major emphasis in most colleges and universities is upon this type of educational program. The community junior college is no exception and a major part of its educational program consists of these courses. (As in the case of) most traditions, however, there has been little concern for changing those courses or giving them any new emphasis in the total program.

Most of these areas of study have little direct and apparent value to the student in helping him to identify at this level his occupational choice and to begin the development of the skills he will need for it. Therefore, within the two year period assigned to the community college educational program, an emphasis has developed (and very rapidly during recent years) which requires rearrangement of certain areas of knowledge in ways designed to prepare specifically for a particular occupation. The development of highly technical areas of occupational performance in a modern society has made it necessary to develop a new level of occupational skills. Existing courses and programs, supported by a dichotomy of educational thinking which divides education into academic and vocational, are not satisfactory for this purpose. Therefore, the community junior colleges have been challenged to develop educational programs which will prepare an individual to become a highly skilled technician, one who serves as an aide to an engineer, a scientist, or a member of the professions, rather than a professional specialist. The need for such technical workers or semi-professionals has been increasing rapidly in a number of general occupational classifications. For example, in addition to the engineering related occupations, such technicians are needed in business related occupations, in health related occupations, and in the public service related occupations. This higher level of education is required for nurses, civil technicians, mid-management executives, and policemen to name only a few.

EDUCATIONAL NEEDS MET BY COMMUNITY JUNIOR COLLEGES

The limitations of previous educational attainment often gets in the way of certain individuals in their search for occupational skills and personal development. Not only the problems occasioned by changing jobs, but also the concern for using leisure time causes the greater portion of the general population to seek opportunities for continued education. The educational program of the community junior college must include provision for individual improvement as needed by that individual. Programs for high school dropouts, for victims of automation, for persons with special educational needs must be planned and incorporated into the available program of studies. While most of these courses will be non-credit (as far as the usual college credit validity is concerned), they will, nevertheless, be of such high quality as to accomplish a specific defined purpose for the students.

The educational needs then which may be identified at this post high school level are categorized in three major areas:

1. Providing occupational education with special emphasis upon the middle-manpower needs is a major responsibility. There remains a specific need for continued educational opportunities to prepare individuals to become proficient in a wide variety of occupations. Since the occupational structure is changing, and since there is increasing emphasis being placed upon the occupational areas which require more formal preparation, there must be an institutional opportunity at the post high school level to prepare individuals to take active roles in the new and developing occupational structure. This education is comprised of both general and specific occupational courses.

2. Providing the basic first two years of a four year degree program is a second important area of responsibility. The placing of this type of program in the community junior college has the effect of eliminating, or at least alleviating, the barriers to continued education which have commonly prevented young people from continuing their education. These barriers typically include financial, geographic, and motivational reasons. By dispersing the basic collegiate program to locations near students' homes, the geographic barrier is eliminated and the financial barrier is lessened. When the programs are varied enough to provide educational opportunities which are relevant to the diverse range of student aptitudes, abilities, and interests, the motivational barrier is also eliminated or at least weakened.

3. The third area of continuing education is not as well developed in many community colleges as are the other two

areas. Modern society in the United States requires continued attention to education. For some the need is to correct previous unsuccessful educational experiences, while for others the need is to learn new skills for livelihood, some persons need to overcome a cultural deficiency, others need to make up a gap in their background. The variety of demands in the area of continuing education must be met with a variety of programs, courses, workshops, meetings, and conferences. The variety of levels and emphases will be comparable to the diversity of individuals who have demonstrated requirements for continued educational opportunity.

The three basic functions of the community junior college are well known: providing the first two years of baccalaureate programs, providing the occupational programs (especially technical), and providing continuing education for adults. While the first of these functions is well accepted and will enroll an increasing number of high school graduates, the really phenomenal growth is likely to occur in the latter two areas. New technician level programs are required by industry and business, public service and health related occupations, and even those occupations related to personal service and homemaking.

Recognition of the increased need of many people for opportunities for continued education throughout their lifetime is a special factor to be considered in estimating the need for future support. There is an increasing awareness of the necessity for educating the disadvantaged. The understanding of ways in which prior educational failures may be corrected is an important consideration. The need for retraining persons in those occupational fields which are becoming obsolete or in less demand is clearly a factor. All of these factors add up to an increasing number of adults who will require educational opportunity over and above the usual cultural and personal educational needs.

As states begin to place more emphasis upon developing "upper division universities" beginning at the 15th grade (junior level) a larger and larger percentage of students will attend the local community junior colleges. As high as 80 percent of the incoming freshmen may be expected to attend a local institution. Therefore the total number of students who will attend the community junior colleges is likely to increase steadily over the next 30 years even though there may be a temporary decrease in the number of persons in the 18 to 24 year age group after 1980.

Total enrollment in the community junior colleges may be expected to increase, then, as a result of:

1. increased commitments to education,
2. increased responsibilities placed upon local community oriented institutions,
3. increased program development, and
4. increased span of years during which persons will take advantage of formal educational opportunity.

These factors will make a ratio of enrollment to population such as that now found in Florida or in California a feasible expectation.

Relation to Other Studies

It is obvious at this point that a discussion of the educational programs of the community junior college must be closely associated with discussions of both vocational technical education and adult education. As was pointed out in the early portion of this chapter a new level of education is now identified. This level is not the same as the secondary education nor is it in agreement with the usual definition of higher education. It is post high school in its attention to persons who have either completed high school or who have passed the normal age level for attending high school.

A study of the parameters of vocational education will therefore overlap the concerns of the community junior college. The same is true of a study of adult education. The educational program of the community junior college is centered around both of these areas as well as the basic first two years of the usual baccalaureate degree program.

FINANCING COMMUNITY JUNIOR COLLEGES

Currently, the financial support of community junior colleges is derived from five sources: local funds, state funds, student fees, federal funds, and gifts and grants. Local funds usually are obtained from taxes collected from real estate property owners. This source of revenue is becoming more and more difficult to tap for the increasing support which is needed. Poor assessment practices, inequities in the property tax and tax payer resistance have caused several states to abandon local taxation as a source of support for their community colleges. State funds are at the present time a major source of community college support in most states. The states generally utilize a broader tax base than do local units of government, including sales taxes and income taxes. These are apparently more reliable indices of wealth than are property taxes and therefore are more acceptable as a source of support for the community college program. Recent trends in several states have shifted support from local to state sources.

Since the early 1960's federal support for higher education in general, and the community colleges in particular, has increased substantially. Although original federal interests were based upon a national defense rationale, more recent federal legislation has recognized that other problems of society require concern for the adequate financing of the community college so that attention may be directed to the problems of the inner city, of the 18 and 19 year old culturally deprived, and of those misplaced workers whose jobs have disappeared, as well as to large numbers of other individuals who have specific educational needs.

The use of student fees as a major source of support was discussed earlier in this chapter. It will be of dubious value to price the community college so high that those who are most in need of the opportunities provided by the community junior college cannot afford the cost.

It is not defensible or practical to consider gifts and grants as a constant source of operating revenue. Special gifts for special purposes would seem to constitute the most important use of this source of revenue.

The current operating expenses of community junior colleges are now approaching one billion dollars annually and are rapidly increasing. Annual capital outlay needs in order to provide for the increasing enrollment will probably total approximately four hundred million dollars annually for the next ten years. Present patterns of financing of community junior college education are very inadequate in most states. Therefore, the National Educational Finance Project has included in its studies a special satellite project on the financing of community junior colleges. During the next two years a consequential analysis will be made of the advantages and disadvantages of alternative models for financing community junior colleges.

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CHAPTER 7

Dimensions of Need for Adult and Continuing Education

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The purpose of this chapter is to examine the problem of financing adult and continuing education over the next decade. The chapter considers first some factors resulting from the increasing demand for educational services expressed by adults not in attendance at college. It takes into consideration the complexity of program offerings and the multiplicity of agencies within which such programs are provided. It gives attention also to the interaction between changes in enrollment and the manner in which financial support is provided.

The chapter is preliminary to a full scale research study, now being conducted as part of the National Educational Finance Project. This study will first provide an overview, which places these programs in the context of total societal involvement in and concern for adults and continuing education. It will next examine the enrollments of adult sub-populations in various kinds of educational programs. It will focus most directly on that aspect of adult education which is provided within elementary and secondary school systems. It will study present financial provisions, and will make some estimates of the potential effects on future enrollments of alternative fiscal arrangements, as well as the fiscal implications of the growing demand for adult and continuing education.

Our society is becoming increasingly education conscious. However, the focus of governmental concern has been on schools and colleges; little legislative action has been taken with respect to that sector of education which is directed toward satisfying the needs of adults. Due to this lack of institutionalized attention, there is much overlapping among the provisions made by various public and private agencies; there is probably, as a result, some inefficiency and a sub-optimal level of service. What appears to be needed is an analysis which places adult and continuing education in focus as an integral part of the total educational enterprise. This may be prerequisite to providing sufficient revenues and to coordinating institutional arrangements. The proposed research study hopes to provide the requisite analysis. In order to provide guidelines for the study, it is first important to examine the magnitude of need for programs of adult education.

DIMENSIONS OF THE PROBLEM

One purpose of the research project will be to categorize the various sub-groups for which educational programs may be provided, and to identify the educational demands or needs of these groups. This chapter discusses some aspects of this problem, as a prelude to further investigation.

There is a vast potential "market" for programs of adult education. Out of a total estimated population of 194 million in 1965 almost 117 million or 60 percent were over 19 years of age. This large number of individuals, some with college degrees and some with less than 12 years of schooling will require some kind of continuing education — ranging from self-instruction to formal courses. Educational organizations, including elementary-secondary school systems, colleges, universities and correspondence schools as well as various governmental agencies and private businesses are already involved in and will need to increase their involvement in programs to provide for the educational needs of adults. In addition, cooperative efforts, as implemented through professional organizations such as the American Bar Association, the American Medical Association, and the American Association of School Administrators will help meet the desires of individuals to keep their knowledge and skills up to date.

In the modern labor force, people with a high school education or more have the greatest variety of opportunities for employment. Persons with less than a high school education constitute the under-educated portion of the population. Fifty-nine percent of the national population of adults 25 years of age and over would fall under this category of under-educated. The demographic trends indicate that there will be approximately 109 million adults 25 years and over in 1970 and 140 million in 1985. Of these 109 million adults in 1970, about 50 million will have less than high school education, and of 140 million in 1985 about 43 million will have had less than twelve years of schooling.[1] In order to participate successfully in this country's economy, political and social life, members of this large segment of the population will need to continue their education and hence opportunities will have to be provided for them to continue their schooling.[2]

According to estimates prepared for the Office of Education, persons with less than eight years of schooling are generally not able to communicate adequately in today's world. Such people may be considered as constituting the Educationally Disadvantaged Population.[3] According to this definition, 24 million adults in the United States could be considered educationally disadvantaged. Ten million of the 24 million educationally disadvantaged work for a living with more than half being employed as farm workers, laborers and machine operators. Such jobs are rapidly being eliminated because of technological change. While employment in the U. S. rose 15 percent between 1950 and 1960, the increase in employment was greatest in jobs requiring the most training and least in jobs which require little training.

The hard core of the unemployed in every state is made up of adults with less than an eighth grade education. In March, 1962, the unemployment rate for workers in their prime working years, 25 to 64 years, who had less than eight years of education was twice as high as the rate for high school graduates and four times that for workers with some college education. In 1962, 50 percent of Chicago's able bodied relief recipients could not pass fifth grade reading and vocabulary tests.[4] The problem is not expected to disappear, since urban elementary and secondary school systems are still characterized by high drop out rates and by the production of many individuals with less than an eighth grade level of attainment.

Theoretical Basis

The theoretical basis of this chapter includes recent work by economists which treats education as a form of production. The output of schooling may be regarded as human capital, a "produced good" which, like material capital, results in a stream of investment and consumption benefits. Like physical capital, human capital is costly to produce, in terms of time and other resources. Comparisons of the costs of producing education with the lifetime benefit stream which results from increased education suggests that this investment is relatively profitable.

Like physical capital, human capital may depreciate over time. This depreciation is associated with a tendency for knowledge and skills to become less effective as the years pass by since knowledge is forgotten and skills deteriorate. More important, human capital may become obsolete in a world which is characterized by rapid technological change.

Adult and continuing education (including the on-the-job training provided by many industries) fits well into the theory of human capital. The types of programs which are provided, and the way in which they are spaced throughout people's lifetimes are elements in a total program of investment in the competences of individuals.

Like other forms of investment, expenditures for the production of human capital may produce both private and social benefits. Private benefits include the ability to secure employment and to increase one's income, as well as to enjoy the nonmaterial benefits associated with education. Social benefits include those advantages which accrue to the wider society as a result of education. Among the many benefits which adult education, broadly defined, is expected to produce is a well integrated social system. In the past, programs designed to meet these goals, especially the Americanization programs for recent immigrants, have apparently been most successful.

Unfortunately, inadequate or inappropriate educational opportunities for a large portion of the population and a shortage of job opportunities for the undereducated are probably related to the increase in civil disorders which has occurred during the past few years. Just as the benefits of education are conferred on a larger population than that immediately affected, so the detrimental effects of inadequate schooling are borne by the total society. The under-educated are subject to a disproportionate level of unemployment and therefore impose a welfare burden on the remainder of the society. They also handicap the efforts of the society to educate its children since the environment in which children of the poor and the under-educated are raised tends not to place a high value on the achievement of education. Those who are deprived of the access to society's economic and other values because of inadequate education may become alienated from those aspects of society which are associated with stability, and may therefore drift into lawlessness and opposition to established values and institutions.

The concepts of social and private benefits are closely associated with the notions of "need" and "demand." Adult education may be separated conceptually into programs which emphasize meeting the aspirations and desires of individuals, and programs which are developed to meet some broader social need, such as is imposed by shared values concerning economic growth, political stability, or social mobility. To a considerable extent, programs are provided in response to the demands of individuals for education or training. These programs, in the private or the public sector of the economy resemble closely those commodities which are sold in the market place. Indeed, the law of the market may apply to some extent, and some people may tend to purchase the educational commodities which are demanded by them, and which are priced in accordance with their ability to pay.

At the other end of the spectrum are programs which are offered in response to some societal deficiency, as recognized and defined by a legislative body or a governmental agency. In the latter category are programs for the education of welfare recipients, programs for the training of the unemployed, or programs designed to raise the literacy level of the adult population. Also in this category may be placed programs designed by the armed services to induct and train those who do not meet their usual educational requirements.

It is therefore useful to differentiate between private *demands* for adult educational programs, and social *needs* as recognized and defined by a governmental agency. An attempt will be made to distinguish between these concepts during the remainder of this chapter and during the research which is being planned in conjunction with the National Educational Finance Project.

Factors Affecting Enrollments in Adult and Continuing Education

A projection of enrollments and costs for various programs of adult and continuing education will therefore be contingent upon two kinds of factors. One is the demand of individuals for courses of an educational nature. This demand is similar to the private demand for goods which are either a form of consumption or a type of investment. The other set of factors may be termed "needs" of the wider society. In order that these needs may be expressed in terms of educational programs, they must be recognized and defined. In some cases, they are identified by legislators and implemented through federal or state laws; at other times, they result from the efforts of the professional educator, who develops courses designed to meet social or private needs, as he perceives them.

The determinants of programs of adult and continuing education are, therefore, extremely complex. This complexity is illustrated in the following six sets of factors which are translated, from private demand or perceived societal needs, into educational programs.

Factors Affecting the Demand for Adult and Continuing Education

1. The composition of the labor force is changing in response to technological evolution. The proportion of the labor force which is composed of professional and scientific personnel is increasing, while the proportion of workers who are semi-skilled and unskilled is decreasing. One result of this rapid change is the dislocation of workers whose skills become obsolete. There is a resultant private demand for additional training on the part of many workers. From the point of view of the total economy, education is needed to relieve bottlenecks, and permit a steady rate of economic growth.

2. Within many occupations, total knowledge is increasing, so that continuing education is required to permit job incumbents to remain abreast of new developments. While it is present throughout the occupational structure, this phenomenon is most evident in the professions, where constant up-grading is needed to permit individuals to perform their tasks effectively. In many

cases, professionals will express a private demand for programs of continuing education. In other cases, however, the need of society for improved medical service may be imposed, and reluctant practitioners may be required to update their knowledge and skills.

3. Large numbers of individuals are so poorly educated as to be incapable of obtaining admission into the labor force. These people constitute the "hard-core unemployed." If they are to be an asset rather than a liability to society, specially designed educational programs must be developed for them. To a limited extent, these people will recognize their deficiency, and will apply for courses which will permit them to obtain employment. However, society's stake in their education is so great that special efforts such as various kinds of sanctions and incentives may be taken to provide courses and to ensure enrollment in them.

4. Overt conflict among the ethnic and social groups in our society appears to be increasing. While it is unlikely that education alone can alleviate this problem, one essential ingredient in the solution is probably an increase in communication among groups, and a better understanding by society as a whole of the demands and aspirations which are being voiced. Education is one component in any resolution of this problem. Individuals may, in many cases, seek out programs which will enable them to communicate more readily with people from different types of background. However, the social "needs" are such that programs may be required, in many kinds of contexts, above and beyond those which are demanded by individuals.

5. Leisure time is becoming increasingly plentiful for many people. Weekly and daily hours of work have decreased in response to improved industrial technology. This results in the availability of large resources of leisure time which may be either consumed or invested. Adult education programs promise important social and private benefits by enabling individuals to maximize the potential benefits associated with the total (work plus leisure) time. Many individuals will express a demand for courses which enable them to make better use of their leisure time. Social needs, resulting from the fact that one person's use of leisure time affects his neighbors and indeed the entire community in which he lives, result in the develop-

ment by educators of programs designed to help individuals use their time as effectively as possible.

6. The number of elderly people in our society is increasing, both in total and as a proportion of the total population. Considerable attention is being given by adult educators to the provision of educational programs for members of this subgroup. Again, many elderly people may seek out programs which will enable them to be happy and productive in their declining years. Society, through its educational institutions, may elect to provide programs beyond those which are immediately demanded. These programs may be publicized, so that elderly people, knowing of the opportunities which are available, may make choices which are consonant with their own welfare, as well as that of the society in which they live.

Educational programs for adults have therefore been developed in response to a complex mixture of private demand and social "needs" as perceived by educators or figures in political authority. Since the rationale for these programs is as yet not clearly defined, it is not unnatural that the adult education programs which have been developed comprise a great variety of activities, and are offered in a complex set of organizational settings.

Nature of Programs in Adult and Continuing Education

Programs and institutional arrangements for the education of adults in a non-collegiate situation are very complex. In the first place, there is much variety among the situations in which adults provide for their own continuing education. Many people instruct themselves, using libraries or television as the source of information. This self-education is pervasive in our culture; however, it would be extremely difficult to measure its extent and to describe its nature. The measurement of costs would be even more difficult. Clearly, opportunity costs are present; however, the foregone opportunities accruing to participants of adult education programs may be mainly non-monetary.

There are, moreover, many formal settings in which adult education is provided. Instruction is provided in a variety of locations — in schools and colleges, in factories and army camps, in libraries and museums. However, few of the institutions which provide adult education make precise measurements of programs costs, or report in detail on the nature and magnitude of the services they provide.

Consequently, since the available data about adult and continuing education tend to be incomplete the magnitude of the problem of providing financial support for these programs is difficult to estimate. As a first stage in the analysis, it is necessary to devise means of classifying these programs. Several overlapping classificatory schemes are appropriate. None is completely satisfactory, but taken together they have considerable meaning. The following methods of classification are used in the chapter:

1. classification by clientele
2. classification by organization
3. classification by program content

Classification by Clientele

The nature of adult and continuing education will vary with the clientele. Highly educated medical doctors will need to have programs which will enable them to remain in touch with the latest developments in their fields. Expectant mothers will wish to obtain knowledge concerning child rearing practices. Elderly people may need to be engaged in programs which will prepare them to spend their declining years in comfortable and productive activities. Among the methods of classification which would be useful are the following:

1. *By age level.* Many programs suitable for young adults will differ from programs useful for the elderly because of differences in their needs and interests.

2. *By sex.* Programs are sometimes differentiated by virtue of their appeal to one or the other sex.

3. *By level of previous education.* Education is cumulative and at all levels of education the amount and nature of previous educational experiences is considered by the curriculum developer in shaping learning activities. Courses for the illiterate will therefore be quite different in some respects from courses offered for college graduates.

4. *By socio-economic level.* Participants in adult education programs will tend to select programs according to their own interests and backgrounds. Hence, programs for the hard-core unemployed will be different from programs selected by the more affluent members of our society. Similarly, programs to help mothers receiving ADC assistance to provide adequate learning environments for their children may and should differ considerably from programs for the suburban housewife.

5. *Occupation.* Much adult and continuing education will be job-related. Training is required which will enable an individual to achieve additional competence in a given occupation or to change occupations as his own aspirations or the demands of the labor force may dictate.

In summary, much of the diversity which characterizes adult education programs results from differences among the various client groups. It is necessary to understand the relationship between the demands of individuals and the provision of programs of adult and continuing education in order that projections may be made of future demands.

Classification by Organization

Corresponding to the complexity of individual demands for adult and continuing education is the diversity of settings within which such programs are offered. Provisions are made within both the private and governmental sectors.

1. *Private.* The major private social unit within which adult and continuing education takes place is the home. It is likely that educational activities in the home exceed in terms of total magnitude those provided in other settings. However, the extent of self-education and of the education of family members by each other is extremely difficult to measure, and hence these factors cannot readily be included in any inventory of resource outlays for education.

Business and industry compromise the other major organizational units for private participation in the provision of adult and continuing education. Businesses and industries engage in educational and training activities to orient, retain, maintain and upgrade their human resources. These programs may be classified according to the purpose or content of the instruction, the social and occupational characteristics of the trainees, the location, scheduling and duration of instruction, the staff, methods and materials used, or the costs and expenditures entailed. In addition, programs vary by industry and by size of firm. Such programs may be financed through federal reimbursement such as the "Job Opportunities in the Business Sector" program.

2. *Public.* In the public sector also, adult education programs are provided in a variety of settings. To begin with, elementary and secondary school systems have been involved in providing adult education since the beginning of the nineteenth century. Universities and colleges have also participated in the provision of such programs, both in traditional credit programs and in extension courses since the latter part of the 19th century. Community colleges have provided continuing education of many types to a wide spectrum of the total population; this activity became a recognized function of such institutions following World War II.

Federal and state governments have provided programs in a variety of settings. The federal government especially has been deeply involved in the provision of adult education. The settings within which such programs are provided are extremely complex, as illustrated by the following classification.

a. Adult basic education is provided by schools, junior colleges, and universities, with the aid of federal funds.

b. Private firms and educational institutions have been enlisted by the federal government in the operation of Job Corps programs.

c. School systems and colleges have operated federal manpower development and training programs.

d. Voluntary agencies assist, with the help of federal funds, in providing programs for migrant and seasonal farm workers.

In addition, the armed services provide a wide range and diversity of educational training programs. These include general educational development programs designed to raise the functional literacy of inductees to a minimum level; basic military training; specialist training; professional development provided in the academies and graduate programs for officers; and pre-separation counseling and training.

Classification by Nature of Program

Programs of various types cut across the organizational and client-centered categories listed above. Thus, programs of vocational education are offered by the armed services, the federal government under the Manpower Development Training Act, local school systems, and private industries. Programs of intellectual self-improvement, and programs designed to enhance people's enjoyment of art and literature also are offered by a variety of institutions.

RELATED RESEARCH

Research into the financing of adult and continuing education has, until now, been fragmentary and incomplete. The projected study will place major emphasis on one aspect of the total offerings, namely, programs conducted in elementary and secondary school systems. This partial analysis has some very important defects, since it may result in policy recommendations which affect other aspects of the total enterprise, in some ways which have not been completely examined. A proposal to increase state support in programs offered in one agency may increase enrollment in two ways. In the first place, increased state support may result in a decrease in fees. This price reduction may increase demand, and hence enrollment. In the second place, as fees for a given program offered in one institution become lower than those charged by a second agency, enrollees may tend to move from the latter to the former. It is important that these effects may be anticipated, so that the potential consequences are, so far as possible, identified in advance.

The first part of this research will include an overview of present activities in adult and continuing education in both the public and private sectors of the economy. Research in the economics of education provides a way of keeping in mind the interrelationships between the various aspects of adult and continuing education. We turn first to this research.

One of the contributions of economists has been to emphasize that the human capital concept is not confined to the education which is provided in traditional institutional settings. Gary Becker has provided a theory of human capital which is sufficiently general to include on-the-job training as well as formal schooling.[5] Jacob Mincer subjected Becker's theory to empirical testing.[6] Kenneth Arrow has analyzed the economic aspects of "learning by doing."[7] Becker's analysis of the economics of time allocation has important implications for the development of programs of adult and continuing education.[8] Fritz Machlup has attempted to provide an overview of the entire "knowledge" industry.[9] These studies will be particularly useful as a basis for the *overview* which is proposed as the first stage of this study.

The other major area of research which is relevant to the financing of adult and continuing education concerns the demand by different sectors of the adult population for educational programs. Traditionally, programs at this level are provided in response to expressed demands. To be sure, the relationship is a two-way one, since educational organizations help create demands, as well as responding to them. Nevertheless, trends in the demand of sub-populations for specific programs will provide some estimate of the "needs" which adult educators must attempt to meet, as well as the fiscal requirements which federal, state, and local governments must face. Fortunately, a considerable body of research exists concerning the demand for adult educational programs. A small sampling of this literature is now reported.

Enrollment in programs of adult and continuing education is, with some exceptions, voluntary. Hence, the number and kind of programs provided will be affected by market demands. On the other hand, the provision of new programs by school systems may affect demand, as may the provision of more adequate information about existing programs. Furthermore, there is some evidence that the demand for certain programs is elastic with respect to price. Hence, a strong argument may be made for governmental subsidies for programs where important social benefits are associated with adult education. In general, however, it may be assumed that detailed information about the demand by adults with differing interests and backgrounds for various adult education programs is essential for projecting program expansions. The following statistics illustrate the research which has been conducted in this area.

A study conducted in 1962-63 by John Johnstone and Ramon Rivera for the National Opinion Research Center dealt with the characteristics of adults most likely to participate in adult education activities. The personal characteristics of the participating population indicate that a majority of participants are young adults, and that 75 percent are under the age of forty, married and with at least one child. Women participate as much as men, though men dominate the vocational area and the women the home and family life area. Whites are slightly overrepresented. The socio-economic characteristics of participants show that nearly three quarters of them are active in the labor force and also that nearly one participant in four is employed in a professional or technical field. Within the "blue-collar" group craftsmen and foremen are overrepresented. The median income of persons active in adult education was $6,600 a year, nearly $1,200 per year higher than the average; and the average number of years they attended school was 12.2 years compared with sample averages of 11.5 years. Thus, it can be seen that it is the better educated and economically better off, not the unemployed or uneducated, who participated in the kinds of adult educational programs available at the time the study was made.[10]

Of special interest to schools was the finding that more women (65%) than men (35%) attend adult education courses. Almost as many young people under 35 years (47%) as people between 35-54 years (45%) use school facilities. More people with high school education (63%) than people with college (29%) or grade school (8%) education were enrolled in school sponsored programs. The greater incidence of female participants may help explain why schools offer more courses in home and family life than any other organization. An alternate explanation is that the *supply* of courses of interest for females helps create a *demand* by females for adult education courses.

Another significant finding of the survey was that persons in high economic levels in cities of 50,000 to 2,000,000 had the greatest knowledge of educational facilities where courses for adults were offered. Those of low socio-economic levels in small towns and farm areas knew the least. It was further found that people in large cities are better informed about adult educational opportunities than are those who live in small towns and rural areas. A considerable portion of the general sample either did not know (12%) or were not sure (33%) where adult education facilities existed. Obviously people who greatly need to use facilities providing adult education are to a large degree not knowledgeable about them. Recently, neighborhood centers have been established under federal programs to make the poor and those with low levels of education aware of learning opportunities. The effectiveness of such centers has yet to be demonstrated empirically.

FINANCING ADULT AND CONTINUING EDUCATION

What lies ahead in terms of providing finances for this level of education? In the first place, in the future as in the past, funds will no doubt come from a number of sources. Private production and financing of post-secondary education appears likely to continue. Individual families will seek out opportunities to educate themselves; presumably, as the total population is better educated, individuals will be better able to produce their own learning experiencs. Furthermore, business firms are clearly increasing their investment in the education of their employees, and this trend is likely to continue.

In the public sector, also, complexity is not likely to decrease Colleges and universities and government agencies (such as departments of defense, labor and agriculture) will continue their educative activities. Furthermore, in many cases, these institutions will compete with each other for students. Overlapping of course offering is likely to continue, at least in the larger urban centers. Furthermore, as noted above, any considerable degree of state support will probably change the number of individuals who enroll in such courses, and also the locus of their enrollment.

The effect of state, local, or federal subsidies upon enrollments is, therefore, of considerable interest. If subsidies, resulting in decreasing or eliminating enrollment fees, causes enrollment to increase, then a large area of possible governmental intervention is uncovered. If this happens in an arena where it is in the public interest to increase enrollment, some possible governmental policies are suggested.

At issue, therefore, is the question of the degree of elasticity of enrollments with respect to tuition fees. If enrollments increase as fees decrease; and vice versa, then enrollments may be said to be highly elastic with respect to price. No doubt, the degree of price elasticity will vary with the particular course being offered. There is some evidence which suggests that enrollments in programs for high school completion are highly elastic with respect to price.

A rather recent example of the influence of state aid on adult education program enrollment is the case of Michigan. Prior to 1964 there was an average charge of from $20 to $30 per course for the adult who wanted to take a high school course. In 1954-65 state aid became available and the enrollment figures began to change radically. The enrollment figures for Michigan are given below:

Adult Enrollment in High School Courses

Year	*Enrollment*
1961-62	31,334
62-63	32,000
63-64	30,746
64-65	36,000
65-66	51,777
66-67	65,000

Source:

Not only did the enrollment increase with the coming of state aid, but also the number of school districts offering adult high school courses almost doubled in two years. These figures led to a tentative conclusion that local school districts will offer high school education courses primarily to the extent to which state or federal financial aid is available.[11]

Besides influencing enrollments, the provision of state aid also makes it possible to institute special programs such as daytime classes for mothers. Olds found greater participation among low income people in the communities where the schooling was free than in communities where a tuition was charged; conversely, he also found that greater participation of higher income people associated with the tuition school than with the free schools.[12] Johnstone and Rivera found that a majority of persons from lower socio-economic levels cited finance as a major obstacle to their participation in adult education activities.[13]

Issues Surrounding the Financng of Adult and Continuing Education

Some major issues will need to be resolved in order that educational opportunities will be provided which are sufficient to meet private demand and social need for adult and continuing education. These issues revolve around the choice of appropriate agencies to provide these services, around decisions as to whether these agencies will be in the private or public sector, and decisions as to how they will be financed. Some of the questions which may properly be asked are the following:

(1) What is the best distribution of programs between public and private agencies? In a nation which values decentralized decision making, and institutional independence it seems appropriate that decisions concerning the education of adults shall continue to be made, to a considerable degree, by the persons who desire the advantages which may be derived from schooling. This would imply that individuals would purchase, from public or private organizations, the amount and kind of education which they desire. It does not, however, rule out the possibility that these organizations may influence demand, by making people aware of possible opportunities, by manipulating fee schedules, and by making their offerings as attractive as possible.

This same principle suggests that businesses and industrial firms will continue to provide programs for upgrading their employees, so that the human resources to which they have access will be of a constantly increasing quality. Self-interest in this case means corporate maximization of profit, as opposed to the self interest of individuals, as described in the previous paragraph.

Nevertheless, in a complex society there is a legitimate concern of government for the education of its citizens. This concern is particularly important in the case of undereducation, since the uneducated, like the physically diseased, can constitute a problem which has harmful effects *vis a vis* the larger society. Hence, it seems likely that government can continue, on an increasing scale, to be involved in programs of adult and continuing education.

(2) How should adult and continuing education be financed? Here again, a mixed private-public system of finance seems appropriate. Where private demands is the major criterion, there may be a major reliance on financing by the student himself. Where sizeable social benefits are involved, public financing may be the major if not the sole source of support for these programs.

(3) What should be the division of costs among the levels of government? This is a question to which part of the study will be addressed. There is no simple answer to this question. However, some guidelines exist in the degree to which one or another governmental level is obligated — by constitutional requirement, or by self-interest, to be involved in providing financial support for such programs. To take one example, if the low level of education of certain adult sub-populations is detrimental to national defense, there would be an argument for federal involvement in certain educational programs. To the degree that states assume a responsibility for providing universal education for their population, high school completion programs may be appropriate. At the same time, local governments may, through the process of public cost-benefit analysis, decide to subsidize certain kinds of adult educational activities of an investment or consumption nature.

(4) What kind of support formula is most appropriate for programs of adult and continuing education? The research project will include an analysis of support systems in use in a sample of states and the apparent effects of these systems. It will conclude with an examination of alternative ways of financing education for adults and a consideration of the implications of each alternative for the development of suitable programs of adult and continuing education.

CONCLUSION

The evolution of programs of continuing education promises to be another major step in our endeavor to permit all citizens to achieve the full development of their potentials, and to enable our society to function effectively. This calls for a rethinking of present procedures for producing adult and continuing education, and for financing it. The path is not as clear as in those areas where clearly established patterns have been developed. In part, the opportunity and the challenge is to provide the structure and financial support which are best able to provide the desired goals, rather than to force our thinking into traditional patterns.

FOOTNOTES

CHAPTER 7

1. Koehler, Lawrence E., Consultant in Adult Education, Bureau of Adult Education, California State Department of Education. Reported by James R. Dorland in a statement before Senate Education Committee on August 15, 1967. (mimeo) p. 6.

2. Any statistic report of educational attainment based upon years of school completed is likely to understate the problem of educational disadvantaged people who in many cases have learned less than their years of schooling would indicate.

3. A Comprehensive Plan for the Solution of Functionally Illiterate Problem, *A Report on the Present, A Plan for the Future*, prepared by Management Technology, Inc., for Adult Education Branch, U. S. Office of Education, Washington, D. C.: March, 1968.

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12. Olds, Edward B. *Financing Adult Education in America's Public Schools and Community Colleges*. National Commission on Adult Education Finance, Adult Education Association of the United States, Washington, D. C., 1954. M. W. Wood and Ward Mason, *Statistics of Public School Adult Education. 1958-59*. U. S. Department of Health, Education and Welfare, Office of Education, Washington, D. C.: 1961.

CHAPTER 8

The Extended School Year

BY

ROE L. JOHNS

Programs for the extended school year, the year-round school and the rescheduled school year all involve the provision of organized learning experiences for children and youth during the summer months. These terms are frequently used interchangeably by writers on this subject. In fact, each one of these terms can be used to include all of the concepts included under the other terms. Therefore, the term "extended school year", as used in this chapter, includes any plan under which a board of education provides organized learning experiences for children and youth during the summer months following the traditional nine months school year.

We have already explored in this monograph the parameters of educational need in broad program areas, and have attempted to identify factors which may lead to increases or decreases in need and public demand for those services by 1980. This is necessary in order to do long range planning for the financing of public education. At the present time, most children and youth in the nation either do not have available any organized public school program extended beyond the traditional nine months school year or the programs available to them are very limited in scope. However, a number of boards of education are beginning to develop plans to provide more extensive educational programs during the summer months. For many years, a number of educational, business and professional leaders have questioned the rationale behind the common practice of using school personnel and the school plant for only nine months of the year. Why, it has been asked over and over, do we continue to operate schools for only nine months? Apparently it is because at one time the labor of children was needed on the farm, but now less than 6 percent of our work force is engaged in farming! At the present time the average length of school term in 51 representative countries of the world is 210 days.[1] Since it is quite possible that the school year will be extended substantially during the next decade, it is appropriate that we examine the extent of the additional financial requirements for this possible extension of the school year.

Extended school year plans have been under consideration since the beginning of the 20th century. Hundreds of articles and monographs and a number of books and dissertations have been written on this subject. It is impossible in this chapter to review this extensive literature, or to examine in detail all of the many plans that have been proposed for extending the school year. Many of these plans are very similar in nature and the differences have no significance for financing. Therefore, in this chapter we will examine only a sufficient number of these plans to indicate the types of extended school year plans that will increase or decrease school costs.

There are many types of extended school year plans and many of these plans vary in purpose. Following is a list of some of these purposes:

1. To save money by reducing the amount of school plant facilities needed.

2. To save money by accelerating the progress of pupils and thereby reducing enrollment.

3. To save money by reducing the number of pupils who are required to repeat a grade thereby reducing enrollment.

4. To make better utilization of costly school plant facilities which at the present time are largely unused during three months of the year.

5. To make better utilization of the time of pupils during the summer months.

6. To provide enriched learning opportunities for pupils.

7. To give students who fail during the regular year the opportunity to make up during the summer months the work in which they are behind.

8. To give teachers employment for a full calendar year.

9. To increase the annual income of teachers.

10. To assist in meeting the teacher shortage by reducing the total number of teachers needed.

11. To meet a temporary building shortage.

Some extended school year plans developed primarily to accomplish certain of these purposes will result in increased school costs, while other plans might either decrease school costs or hold them constant. From the standpoint of financial policy, an extended school year plan that increases school costs is sound if it increases the quantity and/or the quality of educational opportunity proportionately or more than proportionately and it is unsound if it either does not increase or it decreases the quantity and/or quality of educational opportunity provided. Conversely, adoption of an extended school year plan that decreases school costs is sound fiscal policy if it either does not decrease or it increases the quantity and/or quality of educational opportunity provided and it is unsound if it decreases the quantity and/or quality of educational opportunity proportionately or more than proportionately.

In projecting educational costs for the future, it is assumed that most boards of education will adopt extended school year plans that are sound both educationally and fiscally. It is likely that some such plans will increase school costs and that other plans will not increase school costs. In the remainder of this chapter, evidence will be presented on a sufficient number of these plans to indicate the parameters of this problem.

THE FLORIDA STUDIES

Various proposals have been made for extending the school program over most of the calendar year. How much would it increase school costs to operate schools substantially year-round? The costs of alternative plans will vary considerably. Unfortunately, very few studies are available which utilize operations research methods in analyzing the cost of alternative methods. However, a study was made in 1966 by the Florida Educational Research and Development Council in which operations research methods were used to analyze the relative costs of seven different types of extended school term and all year plans of school operation.[2] The study was conducted in a school system with an enrollment of approximately 50,000 pupils. These pupils were taught by 1,763 teachers. The pupils were housed in 59 elementary centers ranging from 115 to 1,112 in enrollment and in 29 junior and senior high school centers ranging from approximately 100 to 1,900 in enrollment. Polk County is a county unit school system serving a population which is located largely in small towns and cities, the largest of which had a total population of approximately 30,000. Therefore, Polk County represents a cross section of urban and rural territory, and estimates of the additional costs of year-round schools and extended school terms for Polk County should be fairly representative for the nation except, perhaps, for large city school systems.

The Board of Education of Polk County requested the research staff to estimate the additional costs which would be involved in operating the various types of plans for year-round schools and extended school terms that had been experimented with or had been suggested. The Board also requested that in estimating the additional costs, the staff assume that the quality and quantity of the educational program provided under each plan be at least equivalent to that provided under the school system's present program. This was difficult to do for some plans. However, the research staff assumed that, insofar as quantity was concerned, a student should be entitled to as many days and hours of school time in grades one through twelve as was provided under the present plan. Under the present plan of operations, schools are operated for 180 days and a student receives 2,160 days of schooling if he progresses normally from grade 1 through grade 12.

In order to hold quality constant, the staff assumed that each student in high school should have the opportunity to take at least as many types of courses under the different plans under consideration as he would under the present plan, and that the same level of supporting instructional services would be available. In making the analysis of the elementary schools, it was assumed that quality would be held constant if no teacher were required to teach more grades in the same classroom than she was teaching under the present plan. That is, if a school under the present plan of operation is so organized as to have one teacher per grade, the costs of the proposed new types of plans were computed on the basis of providing a teacher per grade in that school and the same types of supporting instructional services as are now provided.

At the time of the study, schools were operated for 180 days in Polk County, but teachers were paid for ten months, which provided for an additional sixteen days of preschool and postschool planning. The additional costs for each plan considered were computed first in dollars and then in terms of percentage of increase for each plan. School systems paying teachers for less than ten months would have a slightly different percentage increase for the different types of plans. However, the percentage differential among the different types of plans should remain approximately the same.

Each plan of operation considered is described below and the additional costs for each different type of plan are reported. No attempt will be made in this paper to set forth the details of the computations for each plan. Those computations are set forth in detail in the publication previously referred to. In order that the summary presented below will correspond with the publication by the Florida Educational Research and Development Council, the plans are numbered the same.

PLAN I. The Present Program.

The present program in Polk County provides for only a limited summer term beyond the regular 180-day term. State appropriations provide only for paying the salaries of approximately 12 per cent of the teachers for the extended school term. Summer sessions are operated for approximately six weeks in a number of communities. Attendance in the summer session is voluntary. Students may take enrichment courses in science, art, music, drama and physical education for the purpose of broadening their background. No fees are charged for these courses. A limited number of academic subjects are offered. These courses, as well as make-up courses, are offered on a tuition basis. All estimates of costs for the different extended year plans are based upon the increased costs they would entail in comparison with the present program.

PLAN II. The Present Program Plus a Summer Program Operated Without Cost to Parents — Voluntary Attendance.

This program is the same as Plan I with a regular school year of 180 days and 16 planning days for the faculty. The difference is that the summer program would be operated for 30 days with the entire cost being paid for by the School Board. The summer program would be available to all pupils for the following purposes:

1. To make up a subject or subjects that had been failed during the academic year.

2. To take a new subject or subjects for the purpose of graduating earlier.

3. To take courses for enrichment purposes such as art, science, math, music, drama, and the like.

The program for elementary students would be organized around special needs, such as reading, mathematics, science, and the like. This would make it possible for many students who had failed during the year to alleviate their deficiencies so that promotion could be earned at the end of the summer session. Attendance at this program would be voluntary, but many students would have the opportunity to earn promotion or reduce the time required for graduation. There will be some immediate increase in the cost under this plan; but over a period of years, the increased cost will be offset, at least in part, by savings in the cost of reteaching students who had not been promoted.

It is extremenly difficult to make an accurate estimate of the increased costs of this plan. If 50 per cent of the total student body were to attend this six-weeks extended summer school program and 50 per cent of the teaching staff were to be employed, it is estimated that costs would be increased by approximately 6 per cent. However, this plan would provide some increase in quality because of the extended opportunities for enrichment.

PLAN III. The Present Program Plus a Summer Program Operated Without Cost to Parents but With Compulsory Attendance for Students Who Are Not Promoted and Voluntary Attendance for Others.

Plan III is different from Plan II in only one respect. The Board of Public Instruction would require all students who failed to earn promotion during the regular school year to attend the summer session. It is estimated that the additional cost of this plan would be approximately the same as Plan II.

PLAN IV. A Staggered Four-Quarter System Requiring One-Fourth of the Pupils to be on Vacation Each Quarter.

The calendar year would be divided into four quarters of 12 weeks each. Students would be expected to attend school three quarters during each calendar year. This means that the school authorities would have to assign the students so that 25 per cent of the students would be on vacation during each quarter and 75 per cent would be in school. This plan has been promoted by various business groups (especially the Chamber of Commerce) from time to time.

The advocates of this plan have argued, without making a cost analysis, that this plan would save money. As a matter of fact, this is the most expensive plan that has yet been proposed, assuming that the quality and quantity of the education program are not lowered. Under the present plan, 910½ elementary teachers are employed. However, if no teacher is to be required to teach more grades than she is teaching under the present plan, the Board would need to employ 1,079 elementary teachers for twelve months as compared with employing 910½ elementary teachers for ten months under the present plan.

The four-quarter plan, with one fourth of the pupils on vacation at all times and three fourths in school, actually requires that each school be divided into four schools. For example, let us assume that an elementary school, grades 1-6, has 720 pupils. If it were divided into four schools it would have four schools of 180 pupils each with one teacher per grade, assuming thirty pupils enrolled per teacher. Any elementary school with less than 720 pupils could not be divided into four schools without increasing the number of teachers or lowering the pupil-teacher ratio, which would increase school costs.

In high schools the number of teachers employed would have to be increased from 853 to 918. Thus, under Plan IV it would require 1,977 teachers to staff the schools now being staffed by 1,764. This is an increase of 12½ per cent in the number of teachers employed. These teachers would also be paid 20 per cent more than the ten-months' salary they now receive because they would all be teaching for twelve months.

Therefore, it is estimated that Plan IV probably would increase school costs by more than 25 per cent without increasing school quality. As a matter of fact, school quality might even be damaged under this plan. Furthermore, wherever this plan has been tried, parents have objected strenuously.

PLAN V. Four Quarters of Continuous Study. Makes Possible Graduation From Elementary School One Year Earlier and Graduation from Secondary School One Year Earlier.

Under this plan the school year would be divided into four quarters of 11 weeks each and all students would be required to attend all four quarters. Students would be in school for 44 weeks each year with a two-week Christmas vacation and a six-week summer vacation. Thus, an elementary school pupil would attend school 1,100 days during five years compared with the 1,080 days he attends now during six years. This would mean that the six grades could be completed in five years, which would result in a saving of approximately 16 per cent in the spaces required for elementary school buildings. The annual operational cost would be approximately the same as under the present plan because teachers and other service personnel would have to be on duty 11 months of each year.

Similarly, secondary school students could complete the junior and senior high school programs in five years rather than six. This would also result in a saving of approximately 16 per cent in high school building costs.

Such a plan could reduce the number of calendar years required to complete the public school program from 12 to 10. This would result in students entering college or the labor market two years earlier than they do at present. However, to offset this early graduation, it would be possible to change the age of entering school from six to seven, in which case the students would graduate from secondary school only one year younger than at present.

No plan of year-round school operation examined by the research staff was found to reduce school costs unless the plan operated to reduce school enrollment. It was found that school enrollment theoretically could be reduced 16⅔ per cent under Plan V but the school would operate longer. However, it is possible that the quality of the school program might be damaged by accelerating students as much as two years.

This plan would require an immediate annual increase in expenditure of approximately 14.7 per cent. However, this percentage would decline to less than half that amount after five years and after ten years there should be a reduction of approximately 4.23 per cent in net expenditures.

A modification of this plan is to operate schools for four quarters but to permit pupils either to attend school all four quarters or to attend school for any three quarters they select. It is likely that such a plan would increase school costs if the quantity and the quality of the educational program were not reduced.

PLAN VI. The Trimester Plan — Two-Thirds of the Students in School and One-Third on Vacation Each Trimester.

This plan calls for the school year to be divided into three trimesters of 75 days each. All students would attend schools for two trimesters each year and be on vacation for one trimester. To compensate for the shortened number of days, the school day would have to be 7½ hours in length. It is possible that this plan might lower school quality. Insofar as the researchers could determine, no school system in the United States has as yet attempted to operate under this plan.

This plan would also be more expensive than the present plan. It is estimated that Plan VI would increase school costs about 9 per cent and at the same time probably reduce the quality of the educational program.

PLAN VII. Three Trimesters of Continuous Study Providing for Students to Graduate One Year Early in Elementary School and One Year Early in Secondary School.

Under this plan, the school year would be divided into three trimesters of 15 weeks or 75 days each. This plan would keep the pupils in school for a total of 45 weeks each year with a two-week Christmas vacation and a five-week summer vacation. This program is similar to the four quarters of continuous study in that an elementary pupil could complete the six grades in five calendar years. The secondary pupils could complete the junior and senior high school in five calendar years.

The cost of operating Plan VII would be practically identical with Plan V. Therefore, it is estimated that eventually net school expenditures could be reduced approximately 4.23 per cent per year. It would require an increase in school funds of approximately 14.7 per cent to inaugurate Plan VII. This increase would gradually be reduced, and after ten years the anticipated reduction of 4.23 per cent in net expenditures should be realized.

PLAN VIII. Operate all Schools for 210 days Providing Continuous Study for All Pupils, Provide One Additional Year of Enriching Study In the Elementary School and Graduate One Year Early in Secondary School.

The primary purpose of Plan VIII is not to reduce school expenditures but to increase the quality level and to obtain a greater return from the funds now being expended.

Under Plan VIII pupils would have one year of enrichment and one year of acceleration. The additional cost of initiating this plan would be approximately 11 per cent, but after eleven years of operation this plan would reduce school costs by an estimated .72 per cent. Attention is directed to the fact that Plan VIII would provide almost one year of enrichment and one year of acceleration for slightly less money than the cost of the present school program. Therefore, of all the plans considered, the 210 day continuous progress school program gives the greatest return per dollar expended when both quantity and quality of the program are taken into consideration.

THE NEW YORK STUDIES

The New York State Department of Education has made more extensive studies of extended school year designs than any other agency.[3] The New York Department of Education has given primary emphasis to the development of extended school year designs that potentially reduce school costs without reducing, and hopefully increasing, the quantity and/or quality of educational services provided, and to designs that do not increase school costs but potentially increase the quantity and/or quality of services provided.

Thomas,[4] Consultant in Educational Research for the New York State Department of Education, stated the following about the potential savings through extended school year plans: "School Systems can expect to save money with the adoption of an extended school year program through the reduction of the number of teaching positions and the release of classrooms brought about by the decrease in total school enrollment." This conclusion was based on the assumption that pupils would be accelerated one year in six, assuming a school year of from 210 to 215 days. However, the New York State Education Department recommended that not more than one year of acceleration be provided for in extended school year plans.[5] This recommendation corresponded with the recommendation of the Florida Educational Research and Development Council.

In 1968, the New York State Education Department recommended that consideration be given to the "multiple trails plan" for extending the school term.[6] Some variations of this plan do not rely upon pupil acceleration to obtain economy or educational goals. The financial implications of the extended school year designs studied by the New York State Department of Education are summarized briefly below.

The Staggered Four Quarter Plan.

This is the same as Plan IV studied by the Florida Educational Research and Development Council. The Department recommended against the adoption of this plan primarily because of public opposition to it and the difficulty of its administration in school districts maintaining small schools.[7]

The Trimester Design For Secondary Schools

Trimester designs considered were based upon the division of a lengthened school year into three 68 to 72 day trimester segments. All pupils would be required to attend all three semesters each year. This plan is similar to Plan VII studied by the

Florida Education Research and Development Council with the exception that it was planned to apply to secondary schools only varying in length from four to six years. This plan provides for one year of acceleration in high school without reducing the quantity of educational services provided for pupils. For example, the lengthened school year would make it possible, after a transition period, to reduce the enrollment of a six year high school from 1800 pupils to 1500 by eliminating one year and giving the pupils the same number of days of schooling in five years that they had been receiving in six years. No estimate was given of the percentage of reduction in the budget which could be anticipated. However, the conclusion was drawn that there would be an immediate increase in costs during the transition period and later a reduction.[8]

The Multiple Trails Extended School Year Plan For Secondary Schools.

This plan is designed to be inaugurated by boards of education in four stages. Stage 1 is designed primarily to provide additional classroom space immediately in overcrowded schools. It provides for a reduction in the number of classes taken each day by a student but extends the school year sufficiently (for example to 210 days) so that the student receives the same amount of class time that he would receive under the traditional 180 day term. Stage II provides for pupil acceleration; Stage III provides for enrichment, especially for slow progress pupils; and Stage IV for continuous progress with or without acceleration.[9] The Department stated that "the potential economic advantages inherent in this plan exceed those of any other *known* extended school year plan"[10] but went on to state that it has yet to be tested in actual practice.

The Quadrimester Plan

This plan is based upon dividing the lengthened school year into four 52-53 day quadrimesters, and requiring all students to attend all four quarters. It is similar to Plan V studied by the Florida Educational Research and Development Council except that acceleration is limited to one year under the New

York Plan. The potential savings under the quadrimester plan are similar to those under the trimester plan.[11]

The Extended K to 12 Plan

This plan is a lengthened school year of 210 days based on continuous progress. It provides for one year of enrichment and one year of acceleration during grades K-12.[12] It is similar to Plan VIII recommended by the Florida Educational Research and Development Council. Woollatt[13] estimated that the increased cost of initiating this plan would be approximately 10 percent. This compares with the estimate of an 11 percent increase made by the Florida Educational Research and Development Council. The New York State Department of Education estimated that after the transition period "the resulting savings in operating expenses alone will provide more than is needed to make the longer school year self-sustaining."[14] This conclusion also corresponds with the findings of the Florida Educational Research and Development Council.

SUMMARY

The Research Division of the National Education Association in 1968 summarized the research on the rescheduled school year or the extended school year which had been completed up to that time.[15] In general, that research summary corroborated the findings of the Florida and the New York studies and did not produce any additional findings of financial significance.

A review of the research on the financial implications of extended school year plans was undertaken in order to determine whether the initiation of extended school year plans would increase or decrease school costs, or whether any such plans might provide increased educational benefits received from a given amount of dollars invested in education. The financial research in this area is limited — especially research involving cost benefit studies. However, sufficient evidence is available to indicate the following:

1. Several extended school year plans are available which when initially installed will increase school costs a maximum of 10 to 11 percent, but after the transition period will result in

no increase or even a small reduction in costs while providing a greater quantity or better quality of educational services.

2. Extended school year plans which provide for enrichment only with no pupil acceleration and with voluntary pupil participation may result in an increase in school costs of up to five or six percent.

3. Some extended school year designs developed primarily to save classroom space may actually increase operating costs more than the building costs that may be saved. Such plans usually have a short life and are not likely to be of much consequence in the future.

4. There will be a substantial increase in the number of school districts providing for extended school terms in the next ten years. However, this will not be a major factor affecting school expenditures.

FOOTNOTES

1. See: *Economy and Increased Educational Opportunity Through Extended School Year Programs* published by the University of the State of New York, The State Department of Education, Albany, N. Y.: August, 1965, p. 15.
2. J. B. White, R. L. Johns, Ralph B. Kimbrough and Robert B. Myers, *Year-Round Schools for Polk County, Florida*. Gainesville, Florida: Florida Educational Research and Development Council, College of Education, University of Florida, 1966.
3. See: *Economy and Increased Educational Opportunity through Extended School Year Programs*, published in 1965; *Extended School Year Designs*, published in 1966; and *Setting the Stage for Lengthened School Year Programs*, published in 1968. The University of the State of New York, The State Education Department, Albany, New York.
4. George I. Thomas, *Extended School Year Designs*. Albany, New York: The University of the State of New York, The State Education Department, 1966, p. 7.
5. The State Education Department, *Setting the Stage for Enlightened School Year Programs*. Albany, N. Y.: The University of the State of New York, the State Education Department, 1968. p. 111.
6. Ibid, p. 87.
7. Ibid, pp. 51-52.
8. Ibid, p. 54.
9. Ibid, p. 59.
10. Ibid, p. 87
11. Ibid, p. 72.
12. Ibid, pp. 73-76.
13. *School Management*, "The All-Year School: Time for a New Look". February 1966, p. 154.
14. Thomas, op. cit., p. 8.
15. Research Division, National Education Association, *The Rescheduled School Year*. Washington, D. C.: National Education Association, 1968.

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CHAPTER 9

The Implications of the Dimensions of Educational Need for School Financing

BY

KERN ALEXANDER

In order to provide universal and equitable educational opportunity for its citizens, each state must make provision for appropriate methods of financing education. Adequate methods of finance must necessarily involve the assessment of the dimensions of educational need in order to determine what constitutes sufficiency and equality of funding.

The foregoing chapters present a preliminary assessment of educational needs and provide a backdrop against which fundamental programmatic research may be conducted to determine more accurately parameters of educational needs and, in turn, relate these needs to program costs as well as to the fiscal capabilities of states to support a defensible educational program. The National Educational Finance Project is based on the premise that concentrating research talent and knowledge of experts on educational needs and the problems of financing education can produce methods of financing education more responsive to the needs of children and society than they are now.

IMPLICATIONS FOR CURRENT SYSTEMS OF FINANCE

For some time it has been apparent to many educators and laymen alike that the methods of financing public education by both the states and the federal government are less than adequate. Improvements in existing school finance programs have been slow and rather haphazard, primarily because there has been no comprehensive effort to study and revise the methods of financing education. In most states, systems of finance have evolved which are characterized by certain concepts or doctrinal precepts of school finance which were formulated years ago. Many of the concepts on which current systems of school finance are based are not particularly relevant to today's educational problems and needs. One of the most important assumptions, being seriously questioned by many experts, is the notion that local financial support for education is fundamental to the educational process. It has long been maintained that in order to retain local control of education a substantial portion of school funds must come from local sources. Today, however, it is contended by some that while local control is probably desirable, it is not contingent on local support. To put it another way, control does not necessarily follow money and local financial support for education is not necessarily essential to the maintenance of local control.

Total state and federal financing has been recommended as an alternative to the present local-state-federal cooperative funding. The foremost recent proponent of this position, James Conant, recalls the argument of Henry Morrison who maintained in 1930[1] that a state system of school finance should provide funding sufficient to allow all children to have a satisfactory or adequate level of education, leaving no room for variations in educational opportunity which result from differences in local fiscal capacity.

A related assumption which is undergoing re-examination today is that the primary function of the state, and especially the state department of education, is a purely service and regulatory one. In recent years a drive spearheaded by the Council of Chief State School Officers has cast state departments of education not only in the role of regulatory and service agencies, but also as having primary responsibilities for providing planning and leadership for the schools of the state. This changing concept of the role of the state department of education has been reflected in several states where legislatures have granted increased discretionary authority to state education agencies through the adoption of state aid plans which provide for alternative uses of state funds to be approved by the state education agency. Traditionally, objectivity in state aid formulas has been emphasized on the assumption that state control of education per se was undesirable. The avowed purpose of such objectiveness was to preserve local control by preventing state education agencies from exercising discretion in fund distribution. The fear was expressed that discretion vested in such an agency gave it too much state control and made it subject to political and other non-educational pressures.

Traditionally, the assumption has also been made by many educators and laymen that all desirable educational innovations and adaptations were made by local authorities and that the state agency if anything, prevented desirable change in education. The evidence is mounting however, that this assumption is largely false because, in recent years, the impetus for many desirable educational innovations has come from the federal government and state education agencies. For example, since the enactment by Congress of the Elementary and Secondary Education Act in 1965, state and federal guidelines providing for optional uses of state and federal funds have been used for many fund distributions and have served as a useful device through which central agencies can encourage local innovation and change.

The methods of financing education now being used by states, another area of concern, have in recent years come under attack because of their alleged failure to provide equal educational opportunity to all children regardless of their economic or educational status. Several cases have been filed in Federal Courts which bear important implications for the NEFP study of educational finance. The plaintiffs in these cases point out that the state's system of school finance allows for wide disparities in educational expenditures among districts. (This, in fact, happens in varying degrees, in all states today.) They claim that the state system of finance, when viewed as a composite of both state and local funds, leaves poorer school districts with less money per pupil to support education than is available in wealthy districts.

It is also claimed that state methods of financing education
do not adequately identify and compensate for high cost chil-
ters, who have educational deficiencies caused by mental, physi-
dren. These are the children, as pointed out in previous chap-
cal, social or economic handicaps. To overcome these deficiencies

requires more of the educational dollar than is required to educate children who do not have such handicaps. The plaintiffs in these cases claim that when states do not recognize and provide for these fiscal and educational need differences, they are discriminating against a deprived segment of the population in violation of the Fourteenth Amendment's "equal protection" clause.

Whether such state action or inaction, as the case may be, is actually unconstitutional is a legal question, but it is certainly true that in all states except in Hawaii, there are wide variations in the educational resources which are available to individual school districts. This is revealed quantitatively when expenditures per child by various school districts are compared. The bulk of the research being conducted by the National Educational Finance Project during its second year of operation is devoted to quantifying the educational needs of deviate pupil populations, relating these needs to program costs, and finally determining the relative cost differentials which arise from the fact that it costs more to educate some pupils than it does others. For example, the research being conducted in the exceptional children satellite research project of the National Educational Finance Project may reveal that certain types of handicapped children require a greater proportion of the educational dollar than other types and that it costs more to educate most types of exceptional pupils than regular pupils. This research will seek to weight such cost differentials in a manner which will provide discrete component inputs to emerging models of school finance based on educational programs for specific target groups. Such research will go a long way toward providing measurable standards by which methods of distributing both state and federal educational funds can be evaluated and improved.

The NEFP research should produce better criteria or renewed "principles" which will provide guidance for state and federal legislators in enacting fiscal programs which will meet the peculiar and diverse educational needs of the future. The findings of the NEFP studies will also undoubtedly hold implications for the organizational structure for education among and within states. The nature of the system of educational finance always has important side effects, for example, the potential to influence shifts in the locus of educational power and decision-making.

IMPLICATIONS FOR EDUCATIONAL PLANNING

Both state and federal financial programs for education have suffered from a lack of careful and comprehensive planning. In 1966-67 there were at least 441 funds making up the school finance programs of the 50 states. The proliferation of funds ranged from two in Kentucky to over twenty in California. In many states it would appear that legislatures have, almost at random, funded programs and in some cases have financed programs which may actually negate some of the educational objectives of the state. For example, in many states school district consolidation is professed to be an important educational objective, yet state funds are provided which have the effect of rewarding school districts that do not consolidate. Another example may be found in situations where states have established foundation programs for the avowed purpose of equalization, yet when the entire finance system is analyzed and special funds for various other programs are considered along with the foundation program funds, it is found that very little, if any, equalization actually occurs. Special purpose grants, along with inadequate regulation of local financing, may lead to a school finance system which closely resembles a simple flat-grant allocation. Therefore, the purposes of legislation, as stated in statutory preambles, are not always accomplished.

The primary reason for this situation is an obvious lack of planning and evaluation of finance designs. This lack of planning is vividly demonstrated by the over-abundance of uncoordinated federal programs as well as state programs. It has been estimated that there are at least 100 federal programs for education, many of which exhibit little or no coordination with the total educational effort of the federal and state governments.

While the National Educational Finance Project is not *a priori* concerned with the emerging discipline of planning per se, the Project is vitally interested in the present and future educational needs of children and their fiscal implications. The major issues are: what educational programs are needed, what will the cost be, what program and cost options are available, and what financing alternatives should be considered.

The National Educational Finance Project is designed to contribute to and provide inputs for comprehensive educational planning at both the state and federal levels. As indicated in the previous chapters of this publication, a major component of the total project design deals with program areas which are descriptive of the total educational program from pre-school through junior college. The National Educational Finance Project will draw on systems analysis concepts, particularly Planning, Programming and Budgeting Systems, to accomplish its purposes. The spin-off from the use of PPBS should provide a framework within which educational fiscal planning can be facilitated.

A major problem in designing NEFP was the identification of the parameters of educational needs. In order to organize the project and encompass the entire educational spectrum it was decided to approach the task from a program-oriented point of view. Educational programs were selected which appeared to encompass the educational needs of all children regardless of where they lived. The research design was divided into broad program categories which in turn, establish the parameters of educational needs of target populations. These categories or programs are (1) programs for regular elementary and secondary school pupils, (2) programs for early childrhood education (pre-first grade), (3) programs for exceptional children (gifted or handicapped children), (4) programs for compensatory education for culturally handicapped children, (5) programs for junior college education, and (7) programs for adult and continuing (non-college) education.

These areas represent fundamental or primary educational program areas. A total planning effort for education, as conceived by NEFP, includes these major programs This selection of programs is extremely important in the sense that they will be used as the foundation for modeling state and federal systems of finance. The total educational planning procedure of the future will doubtless be influenced by the programs reflected in models for financing education. In other words, if a substantial amount of money is allocated for education of handicapped children, then consideration in a PPB system must be given to programs for educating the handicapped. Likewise, if a model for school finance is implemented which makes specific provision for compensatory education (education for the culturally deprived), then provision for this type of program must be made in a budgeting system. Therefore, the National Educational Finance Project may have sizeable impact on the formulation of the program structure for a PPB system.

As the parameters of educational need are studied and researched for the NEFP, there will, of course, be revealed many program subcategories which also may influence planning. In the major program category of handicapped children, partial hearing or partial seeing children may emerge as a target population for which large cost differentials may exist. The target population descriptive of this group may be large enough to warrant a program subcategory. If the research indicates such a need, the subprogram may be included in a finance model at the state level which, in turn, may mandate that local school districts identify the same program. In addition, the state may also, as a result of using this model, require evaluation and even cost/benefit analysis of such a program.

It is evident, then, that the research undertaken and the resulting programs, subprograms and models of finance may be of great importance for total educational planning. Without overstating the National Educational Finance Project's importance for PPBS, it seems safe to assume that the research undertaken by the project for identification of target populations and cost differentials may influence the format and framework within which PPBS is accomplished.

IMPLICATIONS FOR URBAN, SUBURBAN AND RURAL SCHOOL DISTRICTS

The tremendous mobility of our population during the past three decades has had extremely important implications for financing education. Neither the states nor the federal government have been able to react quickly enough to avert the problems inherent in such mass human migrations.

The problems of the cities have been well publicized in recent years and certain remedial steps have been taken in an attempt to help alleviate their educational, social, and economic problems. Historically, city school systems have been the most affluent of all local school districts and needed little or no state or federal financial assistance to support what were generally considered to be good educational programs. In fact, many large cities had consistently opposed state equalization plans because they did not need the funds and did not have sufficient fiscal deprivation to qualify for a major share of such allocations. However, as the population migration from the rural areas of southern states to northern cities accelerated, and the flight from the central city to the suburbs reached astronomical proportions, the cities gradually fell from their transcendent position. While most city school districts today are not impoverished, they have experienced a rapid decline in their fiscal preeminence. Cities' relative fiscal capacity, when compared with other school districts, has declined, and they have had to deal with an ever increasing number of educationally disadvantaged children as a result of the influx of socially and economically deprived portions of the population.

The high incidence of educationally deprived children in the great metropolitan centers of the United States is well documented. This, coupled with the decline in the relative ability of the cities to finance the high cost of educational programs for culturally deprived children, is a paramount problem and must be included in any study of educational finance.

The suburban school districts of the nation, while generally exhibiting an increase in their local tax base, have some difficult educational problems of their own.* The problems faced by these districts in the main spring from rapidly increasing school populations and a corresponding need for new facilities. Many suburban school districts, especially the larger consolidated ones, find it almost impossible to finance and build new buildings fast enough to accommodate the expanding enrollments. Some state school finance programs incorporate factors which allow for population growth; however, most do not. Even with their staggering construction problems, suburban districts are generally financially more secure than either core city or rural school districts.

Rural areas of the nation, for the most part, have not experienced either an increase or a decline in their educational or financial fortunes. They have always been educationally and financially weak and they remain so today. Concentrations of poverty stricken people may be found in virtually all rural areas, including such diverse areas as the South, Appalachia, the Coastal Plains, the Ozarks, the Southwest, the Upper Great Plains, Indian reservations and concentrations of Mexican-Americans along the southern border. The President's National Advisory Commission on Rural Poverty reported in September,

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*See: G. Alan Hickrod and Cesar M. Sabulae, *Increasing Social and Economic Inequalities Among Suburban Schools*, Interstate Publishers, Danville, Illinois, 1969.

1967 that there was proportionately more poverty in rural America than in our metropolitan areas. The commission reported that in metropolitan areas one person in eight is poor, in the suburbs one person in fifteen is poor, in rural areas one of every four persons is poor.[2] Contrary to popular belief, not all rural people live on farms. Most, in fact, live in small towns and villages.

Many of these rural areas have always had inadequate educational programs and they continue today to provide inferior programs. The products of these programs make up the large majority of the uneducated and unskilled populace which has migrated to the core cities in recent years.

The National Educational Finance Project is designed to take into consideration geographical, demographic and fiscal disparities — whether they appear in cities, suburbs or rural areas. The project's research effort is program oriented and concentrates on the educational deficiencies of pupils regardless of location. One important component of the project, which will have impact on provisions for educating deprived children, is a study of the funding needed for compensatory education. A special study of this problem will be undertaken and results should have important implications for financing educational programs for deprived children in urban, suburban and rural areas. If, for example, a child is identified as being economically disadvantaged and this results in a higher cost to the school district, then an adequate model of finance should include a provision for recognizing the added cost incurred by the district in educating this type of child.

The National Educational Finance Project is also carefully researching and analyzing the relative fiscal ability of local school districts as well as states. This portion of the project will compare various measures or combinations of measures which will more adequately define the fiscal capacity of school districts, whether they are in cities, suburbs or rural locations.

IMPLICATIONS FOR EQUALIZING EDUCATIONAL OPPORTUNITY

The concept of equalization of educational opportunity is and has long been embedded in and intermingled with the notion of free public school education. Indeed, an adequate system of financing public education requires implementation of equalization techniques in order to overcome the inequities in education which result from great concentrations of poverty which exist in certain school districts and states.

Since the concept of equalization of educational opportunity is so basic to public education, a substantial portion of the resources available to the National Educational Finance Project, will be devoted to the development of models of school finance which will more effectively equalize educational opportunity. There are many definitions and perceptions of what is involved in equalization of educational opportunity. However, for our purposes equalization may be viewed as having two interrelated facets — one, the identification and financing of appropriate educational programs for specific groups of pupils having specific educational needs and two, the allocation of the funds needed to support such programs on the basis of the relative fiscal ability of a school district or a state to support the needed programs.

Current trends indicate that the states are giving more weight to equalization provisions in the formulas for allocation of funds. Table 9-1 shows the increase in the amount of state funds for equalization during the fourteen year period from 1953-54 through 1966-67.

TABLE 9-1
AMOUNT AND PERCENT OF STATE EQUALIZATION FUND DISTRIBUTION
1953-54, 1957-58, AND 1966-67 (IN THOUSANDS)

	1953-54	*%*	*1957-58*	*%*	*1966-67*	*%*
Total Distribution	2,953,027	100.0	4,480,329	100.0	9,645,165	100.0
Equalizing	1,407,713	47.7	2,624,764	59.6	6,675,024	69.2
Other	1,545,314	52.3	1,855,564	41.4	2,970,141	30.8

Source:

As Table 9-1 indicates, there has been a substantial increase in both the amount and percent of state equalization funds during the past decade. The amounts reported here as equalizing do not include flat-grant distribution programs, even though such programs do have some equalization tendencies. Although Table 9-1 does not attempt to indicate precisely how much equalization actually exists, it nevertheless is rather revealing that state legislatures have increasingly been recognizing the need for greater equalization of funds among school districts.

This trend toward more equalization is not confined to state finance programs. It is also reflected in federal grants. The Advisory Commission on Intergovernmental Relations reported in 1964 that since World War II there had been increasing emphasis given to equalization in all federal grant formulas and that by 1963 there was an inverse relationship between per capita income and the distribution of federal grants.[3] The Commission concluded, however, that the amount of equalization attained was only moderate, even though there was greater equalization than previously.[4] Federal grants for educational purposes have tended to follow the trend of all federal funds and have, in recent years, reflected greater equalization tendencies.

Where equalization does exist in federal and state programs, it is usually accomplished by introducing into the distribution formula factors which take into consideration variations in fiscal ability or wealth of the recipient districts. State equalization formulas are based largely on wealth variations as measured by property values, although some states have indices of taxpaying ability and a few employ personal income measures to determine a school district's fiscal ability. The federal distributions rely heavily on personal income data in measuring fiscal ability.

While provisions for equalization do exist in state and federal support programs, and seem to be increasing, such equalization is based chiefly on fiscal deficiencies of states and localities and rarely is geared to educationally measurable deficiencies. In recent years the case has been made with increasing frequency for distribution plans which include features recognizing the high cost of programs for educationally disadvantaged children. Current categorical aid programs at the state and federal levels are obviously intended to deal with a specific educational need, however, the grants are usually sporadic and are not uniformly designed to cover the entire educational program.

It is important to note that some states have for many years provided funds on a need basis using weighted classroom units or weighted pupil units as well as other factors ranging from size of school districts and comprehensiveness of educational program, to different weightings for kindergarten, elementary and secondary school pupils.

There are many methods used in both federal and state programs to identify the various educational needs, however, there seems to be very little empirical evidence supporting any of the approaches used to identify high cost programs. All of this indicates a lack of basic information and research concerning the parameters of educational needs of diverse target populations and cost differentials associated with programs designed to meet these needs. The primary task of the National Educational Finance Project, as is pointed out in the preceding chapters, is to identify educational needs and cost differentials of diverse programs and to express them quantitatively in order that they may be introduced into model systems of school finance. The chapters presented earlier establish the framework within which NEFP satellite projects will research broad educational program areas endeavoring to identify alternatives which may be used to form defensible school finance models.

IMPLICATIONS FOR DEVELOPMENT OF MANAGEABLE STANDARDS FOR EQUALIZATION OF EDUCATIONAL OPPORTUNITY

When a law is enacted providing funds for education, the formula for the distribution assumes certain rationale or standards which circumscribe the ultimate effectiveness of the law. Since equalization of educational opportunity is a primary objective of most grants, it seems logical that criteria would have been established which accurately define the methodologies for accomplishing equalization. However, as pointed out above, when state or federal formulas are examined, there appears to be little research supported standards for equalizing educational opportunity. This was pointed out in a recent case where pupils sued the state of Illinois to obtain a redistribution of state school funds based on the pupil's educational needs. These culturally deprived children claimed their constitutional rights were being violated because they were not given more funds to overcome their educational deficiencies. The court responding to this complaint said there were no judicially manageable standards by which the court could determine when the Constitution is satisfied and when it is violated. The court said:

> "The only possible standard is the rigid assumption that each pupil must receive the same dollar expenditures. Expenses are not, however, the exclusive yardstick of a child's educational needs. Deprived pupils need more aid

> than fortunate ones. Moreover, a dollar spent in a small district may provide less education than one used in a large district. As stated above, costs vary substantially throughout the state. * * * * * As new teaching methods are devised and urban growth demands changed patterns of instruction, the only realistic way the state can adjust is through legislative study, discussion and continuing revision of controling statutes. Even if there were some guidelines available to the judiciary, the courts simply cannot provide empirical research and consultation necessary for intelligent educational planning.[5]

The court's statement here points out a problem which is familiar to most educators; the identification and quantification of educational need.

The basic purpose of all educational fiscal policy should be to put the money where the need is and if this is adequately done, equalization of educational opportunity will be in a large part accomplished. In order to do this, as the court indicates, there must be much more research and planning in education. The primary aim of the National Educational Finance Project, beginning with this publication, is to empirically measure educational needs in a manner appropriate for providing more adequate methods of financing education. Target populations will be identified and cost analysis will be conducted in order to determine what cost differentials actually exist among the various pupil populations.

It is doubtful that this project will be able to forecast the precise amount of funds required to totally equalize educational opportunity for each child in each educational program. Such factors as location, sparsity, administrative efficiency and teacher effectiveness are variables not easily harnessed. However this project should be able to provide minimal standards for equalization or at least recommend standards for school finance which tend toward greater equalization. Such criteria may be used to assess educational aid formulas as to their equalization traits and be relied upon to provide broad guidelines for equalization. By using these standards as a yardstick one could determine whether a specific fund distribution tended toward or away from equalization of educational opportunity. With such a frame of reference educators and legislators would have a more solid foundation on which to establish a system of equal educational opportunity.

IMPLICATIONS FOR MODELS OF SCHOOL FINANCE

The last phase of the National Educational Finance Project requires the integration and synthesis of knowledge acquired in project research activities to conceptualize, develop and test educational finance models which will utilize the fiscal resources of local school districts, states and the federal government in order to adequately fund the educational programs needed to serve the diverse needs of all people. The objective of NEFP is not to identify a single "best" model for financing education. Rather, the objective is to test several feasible models against a common set of criteria so that policy-makers may be cognizant of the explicit strengths and weaknesses of various models as they consider alternative models of school support.

Conceptually, educational finance models can be viewed as consisting of two distinct, though interrelated ingredients — revenue dimensions and allocation dimensions. Implicit in practically all revenue dimensions currently employed in educational finance programs is the notion of a state-local partnership in which a significant portion of the total revenue is derived from locally levied taxes, primarily taxes on property. Embedded in the revenue dimension is a value judgment, arrived at through the political process, concerning the share of revenue which should be provided by each "partner"—the state and the local school district. In recent years a third "partner", the federal government, has become increasingly active in financing education, although debate concerning the propriety of the new partner's involvement has not completely abated. Thus, for NEFP purposes, several possible revenue patterns need to be considered. The possibility of complete state financing must be examined, as well as the possible use of local non-property taxes, either levied and collected locally or as a supplement to taxes levied and collected by the state.

The allocation dimension of a school finance model, for example, may consist of two components. One is the educational need component which should reflect the programmatic aspects of the model. The preceding chapters represent preliminary steps to establish a basis for this component of a model. Elements of this component may be the educational need variables which research indicates represent deviate programs requiring special consideration in a financing scheme. For purposes of this explanation, programs presented in Figure 3 indicate the selected programmatic areas being researched by the NEFP. When cost differentials are applied to these program areas the total cost should represent the entire financing load required to overcome deviations in educational need. The research being conducted by NEFP may result in identification of several new educational need categories or may suggest the meshing and consolidation of existing ones.

The other component usually included in the allocation dimension is one which is certainly necessary if the purpose of the formula is to equalize educational opportunity by overcoming fiscal disparities among states or school districts. Here a measure of wealth such as personal income or property valuations are generally used to establish the relative differences in wealth. (Figure 3.) Another element of this component may be an effort index which is usually designed to maintain a minimum level of effort or even reward for high effort.

Computer programs will be written for each of the educational finance models and simulation procedures will be employed to test each model. A number of hypothetical school districts will be constructed to reflect the program and fiscal variables identified and quantified in earlier phases of the project. These hypothetical school districts will be employed to demonstrate the effect of several educational finance models on school districts having varying economic and demographic characteristics. Upon the completion of the project, computer programs for the various educational finance models will be available for use by individual states who wish to analyze the effects of the adoption of various models on school districts in their state.

For purposes of illustration only, a model may be constructed which will lend itself to the use of a program budgeting technique at the state level. Using both the revenue and allocation dimensions (See Figure 1) such a model could illustrate the flow of funds from the taxpayer, through federal, state and/or local government to the schools. In the revenue dimension (See Figure 2), decisions can be made relative to the amount of funds from federal, state or local sources, whether to levy certain taxes at the federal, state or local level, and the rates to be applied to tax bases once the decision to levy a tax is made.

In the allocation dimension (See Figure 3), decisions can be made concerning the specific measure of educational need to be used in the formula, programs to be offered, weight to be given to various programs, application of unit costs, and whether or not the state will place a limit on the total units allowable by category.

In such a model, it might be assumed for example, that the federal involvement will consist of financing a predetermined percentage of the total cost, or it might be assumed that the federal contribution represents the residual costs after state and local revenue decisions are made.

The following charts (Figures 1, 2 & 3) show primary decisions which may be made to alter the models, allocation dimension and revenue dimension. As pointed out above, the NEFP will culminate in 1971 with the construction and computerization of several models of school finance which, hopefully, will be of benefit to legislators, educators, and laymen in improving the methods of financing education in the United States.

FOOTNOTES

[1] Henry C. Morrison, *School Review.* Chicago: University of Chicago Press, 1930.

[2] *The People Left Behind,* A Report of the President's National Advisory Commission on Rural Poverty, Washington, D. C., GPO, 1967, p. 3.

[3] *The Role of Equalization in Federal Grants,* Advisory Commission on Intergovernmental Relations, Washington, D. C., GPO, 1964, p. 63.

[4] *Ibid,* p. 72.

[5] McInnis v. Shapiro, 293 F. Supp. 327 (1968).

Figure 1
An Illustration of Some Primary
Decisions of A School Finance
Model

Primary Revenue Dimension Decisions Primary Allocation Dimension Decision	Whether or Not to Levy Given Tax	Extent to Which Taxes Will be Federal, State or Local	Rates to be Applied On each Tax
Measure of Educational Need			
Programs to Be Offered			
Application of Cost to Programs			
Fiscal Ability and Effort			

Figure 2
An Illustration of Revenue Dimension of Model

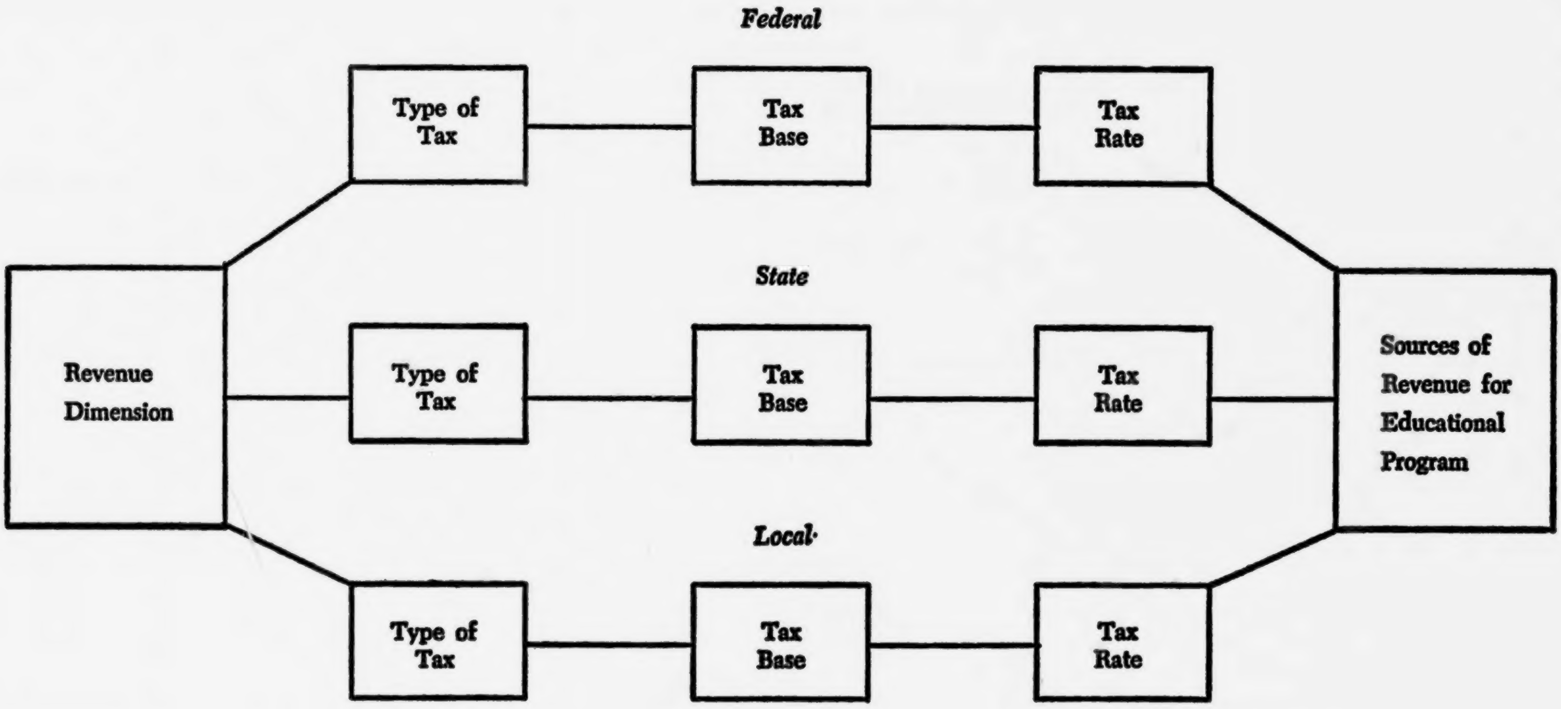
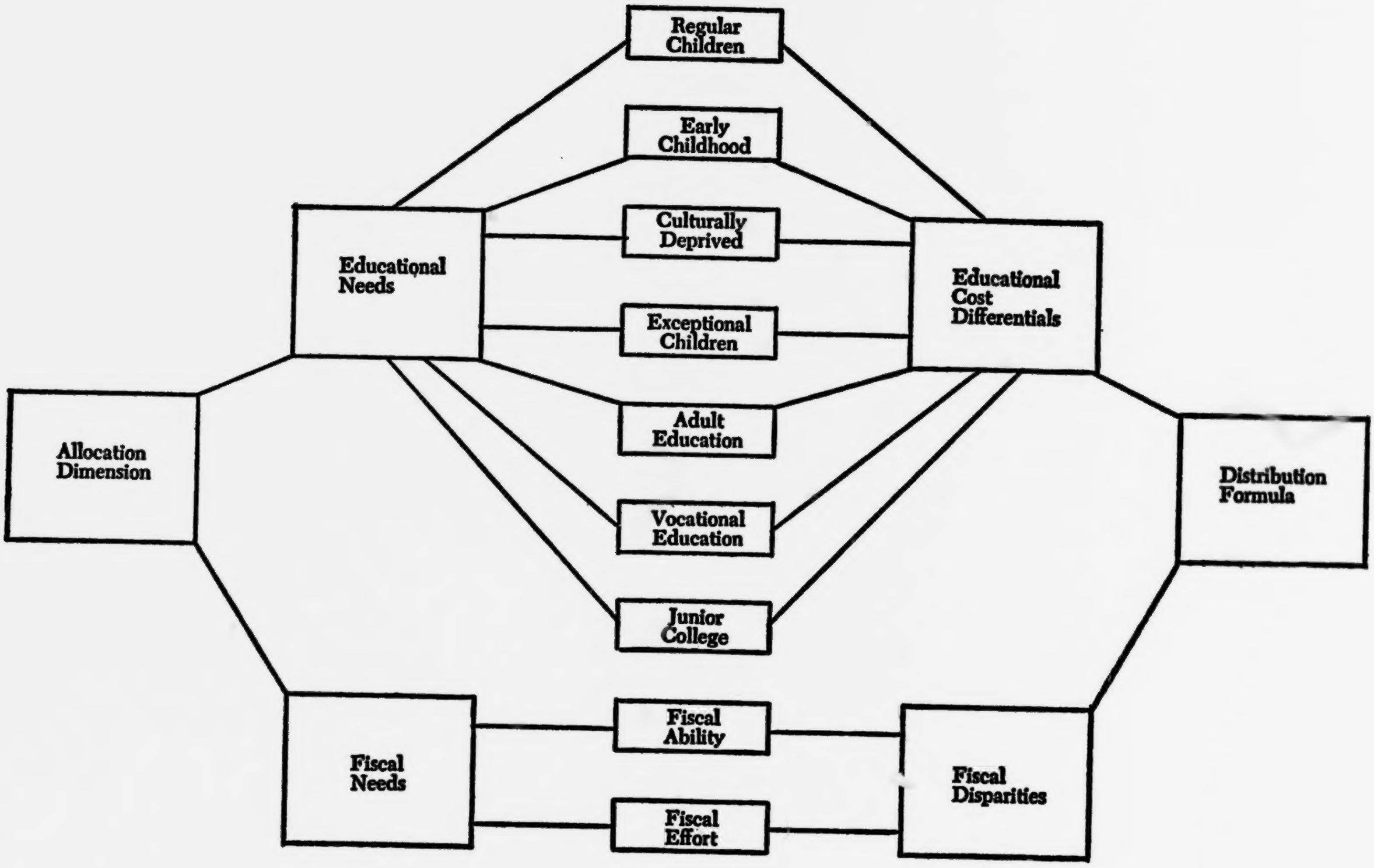

Federal
Type of Tax
Tax Base
Tax Rate
State
Revenue Dimension
Type of Tax
Tax Base
Tax Rate
Sources of Revenue for Educational Program
Local
Type of Tax
Tax Base
Tax Rate

Figure 3
An Illustration of Allocation Dimension of Model


Regular Children
Early Childhood
Educational Needs
Culturally Deprived
Educational Cost Differentials
Exceptional Children
Adult Education
Allocation Dimension
Distribution Formula
Vocational Education
Junior College
Fiscal Ability
Fiscal Needs
Fiscal Disparities
Fiscal Effort

APPENDIX

An Abstract of

THE RESEARCH DESIGN FOR THE NATIONAL EDUCATIONAL FINANCE PROJECT

BY

R. L. JOHNS*
KERN ALEXANDER*
RICHARD A. ROSSMILLER*

The National Educational Finance Project (NEFP) is a cooperative endeavor, funded principally under Title V, Section 505, of the Elementary and Secondary Education Act, involving state departments of education, universities and the United States Office of Education in the study of contemporary problems in financing education.** The project represents the first systematic effort to study comprehensively all state systems of school finance and to critique them in the light of current educational needs and trends. The project is designed to accomplish three major objectives: (1) identify, measure and interpret deviations in educational needs among children, school districts and states; (2) relate variations in educational needs to the ability of the school district and state to finance appropriate educational programs; and (3) conceptualize various models of school finance and subject them to consequential analysis to identify the strengths and weaknesses of each model.

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*R. L. Johns is Professor of Educational Administration, University of Florida and Director, National Educational Finance Project. Kern Alexander is Associate Professor of Educational Administration, University of Florida and Associate Director, National Educational Finance Project; Richard A. Rossmiller is Professor [illegible] Educational Administration, University of Wisconsin and Finance Specialist, National Educational Finance Project.

**Support for specific satellite research projects within the NEFP also is being provided under Title IV and VI of the Elementary and Secondary Education Act. In addition, the U. S. Department of Agriculture has funded a satellite project on the financing of the school food service program.

The National Educational Finance Project is being undertaken at a time when conventional approaches to financing education are under sharp attack. Legally and historically the fifty states bear primary responsibility for establishing and supporting a system of free public education for their citizens, although in many states much responsibility for the day-to-day operation of public schools has been delegated to local school districts and boards of education. Decentralization of the organization for education traditionally has been accompanied by a heavy reliance on local property taxes to support public elementary and secondary schools which, as Cubberley noted long ago, leads to great disparities in the quality of local education programs. Since the beginning of the present century authorities in school finance have attempted to conceptualize and implement school financing programs which will equalize educational opportunities for all children within a state and, at the same time, allocate equitably among the taxpayers of the state the taxes required to finance such programs. Today, however, state programs for financing public education increasingly are proving inadequate to meet the demands generated by the pressure of contemporary expectations for the schools. Among the factors contributing to this disarray are:

1. A growing awareness of the importance of providing an adequate education for all citizens; for example, population mobility makes the poorly educated child in any state a potential concern of citizens of all other states.

2. An increasing recognition of the need for differentiated educational programs for individuals and groups having special learning needs; for example, the emotionally maladjusted, culturally deprived or intellectually gifted learner.

3. A developing understanding of the importance of human capital to the well-being of a "brain-intensive" economic system.

4. A burgeoning use by the federal government of appropriations earmarked for educational programs, i.e., categorical aids, designed to accomplish specific purposes deemed to be in the national interest; e.g., programs to offset disadvantages resulting from cultural and/or economic deprivation.

5. A growing disparity between the revenue available to the schools from traditional sources and the amount of money

needed to mount programs which satisfy societal demands; e.g., property taxes, the only major source of revenue available at the local school district level not only are reaching their limit in many school districts, but are not well related to the sources of income in an industrialized urban society.

6. An expanding population to be educated in the public schools resulting both from population growth and from the rapid extension of free public education at both ends of the transitional age range, i.e., to the early childhood and the post high school years.

7. A complex of population shifts which has produced a "flight to suburbia" from the cities by relatively affluent, middle class Americans and a movement to core cities by poorly educated and unskilled members of minority groups so that cities are faced with a great influx of "high cost" citizens (in terms of their consumption of public services) at the same time that their revenue potentials are declining.

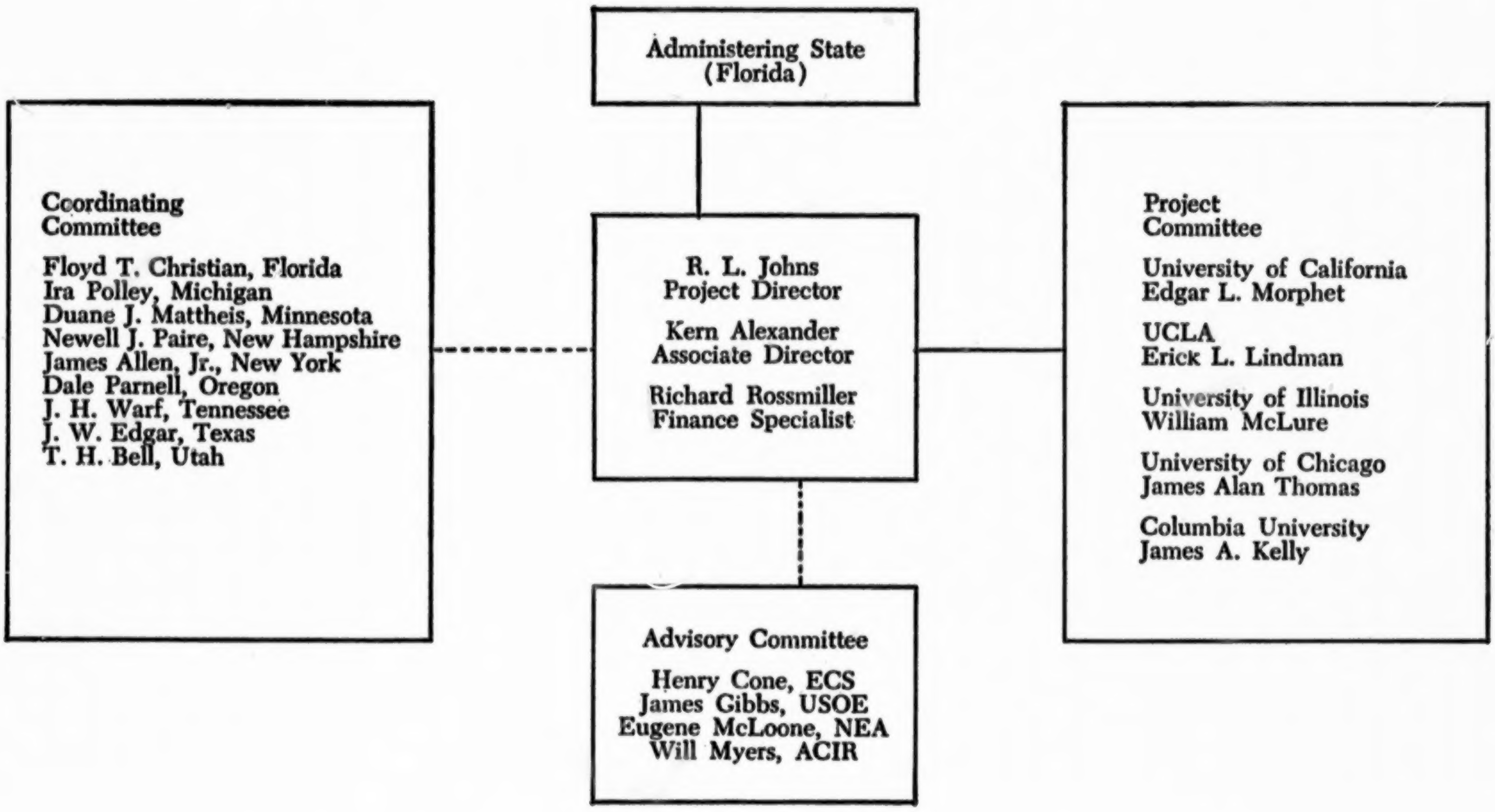
Indicative of current dissatisfaction with existing programs for financing education are suits which have been filed in Michigan, Illinois, California, Virginia, and Texas claiming that the state support programs in each of these states is unconstitutional in that it denies to pupils in various types of school districts equal protection under the law as guaranteed by the Fourteenth Amendment. Also noteworthy are the proposals advanced recently by such noted educators as Conant and Allen that the state abandon local taxes for education and assume complete responsibility for financing its public schools. It is against this background and within this context that the National Educational Finance Project has been launched.

ADMINISTRATIVE STRUCTURE OF THE NEFP

The administrative structure of the project is shown in Figure 1. The project is administered by the Florida State Department of Education. The director of the project is Dr. R. L. Johns, Professor of Educational Administration, University of Florida and the associate director is Dr. Kern Alexander, Associate Professor of Educational Administration, University of Florida. The central staff of the project is headquartered at Gainesville, Florida. Three committees have been organized to

Figure 1

Administrative Structure of the National Educational Finance Project


Administering State
(Florida)
Coordinating Committee
Floyd T. Christian, Florida
Ira Polley, Michigan
Duane J. Mattheis, Minnesota
Newell J. Paire, New Hampshire
James Allen, Jr., New York
Dale Parnell, Oregon
J. H. Warf, Tennessee
J. W. Edgar, Texas
T. H. Bell, Utah
R. L. Johns
Project Director
Kern Alexander
Associate Director
Richard Rossmiller
Finance Specialist
Project Committee
University of California
Edgar L. Morphet
UCLA
Erick L. Lindman
University of Illinois
William McLure
University of Chicago
James Alan Thomas
Columbia University
James A. Kelly
Advisory Committee
Henry Cone, ECS
James Gibbs, USOE
Eugene McLoone, NEA
Will Myers, ACIR

establish policy for the project and to provide advice and counsel to the director and central staff.

The Project Committee is made up of five school finance experts (William McLure, University of Illinois; Erick Lindman, UCLA; Edgar Morphet, Designing Education for the Future; James Kelly, Columbia University; and J. Alan Thomas, University of Chicago) who serve as a policy board and as consultants for the technical design of the project. The Advisory Committee is composed of Henry Cone, Education Commission of the States; James Gibbs, U. S. Office of Education; Eugene McLoone, National Education Association; and Will Myers, Advisory Commission on Intergovernmental Relations. This group advises the director concerning project design and operation. Rounding out the committee structure is the Coordinating Committee made up of the chief state school officers (or their representatives) of nine of the cooperating states: Florida, Michigan, Minnesota, New Hampshire, New York, Oregon, Tennessee, Texas, and Utah.

The overall plan of the National Educational Finance Project incorporates two significant concepts in programmatic research directed toward the solution of contemporary educational problems. First, in the initial plan of the project adequate time and sufficient funding was provided to develop comprehensive and detailed plans for the specific research to be conducted. Second, the project represents a unique approach to programmatic research in education in that "satellite" studies will be conducted by researchers in a network of universities across the nation in cooperation with state departments of education. This approach has made it possible to assemble a research team composed of the best researchers available in the field of school finance, regardless of where they may be located.

DESIGN OF THE STUDY

The NEFP includes four separate but interrelated and overlapping phases which are shown in Figure 2. Phase I of the project was devoted primarily to planning and developing a comprehensive project design. The design of the project involved a joint effort by school finance consultants from universities, state departments of education, and other agencies and organizations interested in school finance. In addition, legislative leaders in all states received questionnaires asking them to identify what they felt were the most serious problems in financing education in their respective states. Drawing upon these authorities and resources, the central staff completed the project design in January, 1969.

Satellite Projects for Analyzing Parameters of Educational Need

Phase II of the project, which extends from February 1, 1969 to May 31, 1970, will draw upon systems analysis concepts, particularly PPBS, to delineate the parameters of educational need. A major obstacle to the development of financial support programs which will provide equitably for the needs of persons in *all* school districts is the proclivity to equate educational need with the gross number of pupils to be served, i.e., the failure to differentiate between the varying educational needs of identifiable target populations which the schools either are now serving or should be serving. By identifying the target groups to be served by various educational programs, and the unique educational needs of each target group, this phase of the research will facilitate planning, programming, and budgeting to meet these needs, as well as providing a format within which it will be possible to perform meaningful operations analysis.

To accomplish the objectives of Phase II, several authorities in school finance will conduct satellite research projects designed to establish the parameters of educational need of the target groups served by each of the following programs:

1. Programs for regular elementary and secondary school pupils — William McLure, University of Illinois

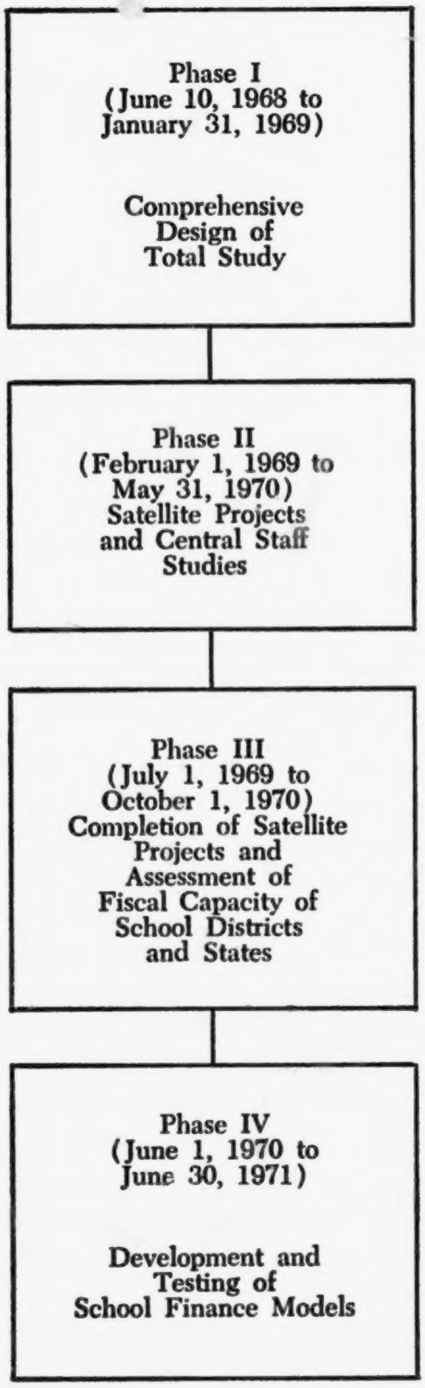
2. Programs for early childhood education (pre-first grade) — William McLure, University of Illinois

3. Programs for educating exceptional children (gifted or behaviorally disabled children) — Richard Rossmiller, University of Wisconsin

4. Programs for compensatory education (culturally handicapped children)— Arvid Burke, State University of New York at Albany and James Kelly, Teachers College, Columbia University

Figure 2

Phases of the National Educational Finance Project


Phase I (June 10, 1968 to January 31, 1969) Comprehensive Design of Total Study
Phase II (February 1, 1969 to May 31, 1970) Satellite Projects and Central Staff Studies
Phase III (July 1, 1969 to October 1, 1970) Completion of Satellite Projects and Assessment of Fiscal Capacity of School Districts and States
Phase IV (June 1, 1970 to June 30, 1971) Development and Testing of School Finance Models

5. Programs for vocational and technical education — Erick Lindman, University of California at Los Angeles

6. Programs for junior college education — James Wattenbarger, University of Florida

7. Programs for adult and continuing education (non-college) — J. Alan Thomas, University of Chicago

In each of these satellite projects the investigators will seek to: (1) identify or develop criteria for identifying the target population to be served, (2) develop accurate estimates of the number of persons in each target group, (3) indicate the nature of the educational programs needed to meet the needs of each target group, i.e., how they differ from the regular educational program and (4) determine the cost differentials implicit in such programs.

The first step toward accomplishment of the above objectives will be the preparation of papers which define the parameters of educational need in each of the above program areas. Each paper will be prepared by a member of the central staff or the project committee in collaboration with a recognized authority in the program area. In preparing these papers the literature concerning each program area will be reviewed to ascertain the extent to which data are available concerning target populations, educational programs and cost differentials, and to identify the additional research needed to accomplish the objectives of Phase II. Investigations designed to provide the needed data will then be conducted. To obtain these data each investigator will select a sample of states in which may be found exemplary programs for the target population under study. (Exemplary programs are defined as those programs which have been demonstrated by empirical evaluation to be effective or, where empirical evaluation is not available, which are advocated by authorities in the field as being most likely to be effective. An attempt will be made to include in the sample states which are representative of particular problems — such as sparsely populated and densely populated states, states having concentrations of culturally or economically disadvantaged persons or minority groups, states having high and low per capita incomes, and the like — and to provide geographic dispersion of the sample (insofar as these criteria are compatible with obtaining a sample of states which have exemplary programs.)

Data concerning the general characteristics of exemplary educational programs for the target population under study, and the costs associated with such programs, will be obtained from records maintained by the state department of education and interviews with state department of education personnel. To obtain specific data concerning characteristics of exemplary programs for the target group under study, a sample of local school districts will be drawn in each state. An attempt will be made to include in the sample school districts of varying size and varying social, economic and demographic characteristics. On-site visits will be made to the school districts included in the sample in order to (1) describe explicitly the nature and characteristics of the program; (2) identify the criteria for participation in the program, the number eligible to participate in the program, and the number actually participating; (3) determine the specific additional costs incurred in providing the program; (4) establish the relationship between the cost of the special program and the cost of the regular school program; and (5) obtain any empirical evidence which may be available concerning the efficacy and benefits of the program under study.

It should be noted that an identical sample of states and school districts will not be employed in each investigation. Rather, the primary criterion employed in selecting the sample for each study will be the existence of exemplary educational programs for the target group under study. It also should be noted that the primary concern in these investigations is for the cost differentials between special and regular educational programs, not for the absolute dollar amounts expended for such programs. While it is recognized that expenditures per pupil for both regular and special programs vary from one school district to another, it is assumed that the cost differential —the ratio of the cost of the special program to the cost of the regular program — for special educational programs for various target groups will not vary significantly from one district to another. The validity of this assumption will, of course, be tested in the course of these investigations.

The data obtained from the sample of states and the sample of school districts will be analyzed to determine the general nature and characteristics of exemplary programs for the target population under study, with particular attention directed to similarities and differences in the programs. Additional costs attributable to each program will be aggregated, cost differentials will be computed for each program category in relation to the cost of the regular educational program, and a range of differential costs will be established. Program needs will be projected to 1980 based on standard population projections, trends in the population in the target group, and costs associated with educational programs for such persons. In summary, these investigations will provide a framework within which educational needs may be expressed in a programmatic format, both quantitatively and qualitatively.

Other Satellite Research Projects

Four other satellite research projects are included in the research design. Following is a brief description of these studies.

1. A satellite research project dealing with financing of the construction of educational facilities also will be undertaken during Phase II by W. Monfort Barr, Indiana University. This study will provide detailed data concerning current provisions for financing schoolhouse construction in the various states and will identify the problems implicit in these provisions.

2. A study dealing with the fiscal capacity of school districts and states will be conducted by Richard Rossmiller at the University of Wisconsin and will examine the fiscal capacity and tax effort of states, hypothetical regional taxing jurisdictions within states and local school districts. A sample of approximately eight states will be utilized. The states comprising the sample will be selected to obtain wide geographic dispersion; to include at least one state in each quintile (by rank) on distributions based on per capita income, income per person age 5-17 and state-local taxes as a percentage of per capita personal income; states with large urban centers and states primarily rural in character; and states which have a large number of local school districts and states which have a small number of local school districts.

Within each state a sample of approximately 15 to 25 school districts will be selected for intensive study. The sample will be stratified to include core city, suburban, independent city and rural school districts. Consideration also will be given wealth (as measured by personal income and/or property value) in selecting the sample of districts. The data to be gathered for each school district will include information concerning both educational services and all other public services. Comparisons of fiscal capacity and tax effort will be made using property value and personal income as bases and using expenditures for education, for all other public services, and for education and all other public services combined.

3. A study of the impact of school district organization on state support programs will be conducted by Clifford Hooker at the University of Minn., and will focus upon the relationship of school district organization to state aid distribution systems. State support provisions concerning school district reorganization and other statutory provisions which affect school district reorganization will be identified by a survey of the 50 states. This survey will provide data which will be utilized to select a sample of states which provide a range of situations with regard to provisions for school district reorganization. From states in this sample will be obtained various data regarding the interaction between fiscal provisions and school district reorganization and various hypotheses concerning this relationship will be tested.

4. A comprehensive study of the financing of the school food service program will be directed by Robert Garvue, Florida State University. This research will utilize some of the techniques used by the researchers of the parameters of educational need. For example, exemplary programs for meeting school food service needs will be projected on the basis of such programs. Furthermore, alternative models for financing the school food service program will be evaluated.

Central Staff Studies in Phase II

Concurrent with Phase II activities outlined above, the central staff will undertake research which will delineate the objectives served by state support programs, describe the models of state support now in use, and indicate the extent to which existing state support programs satisfy contemporary educational needs. These studies will include the following:

1. Identification and classification of state school funds;
2. identification and analysis of provisions which tend to

either discriminate against or favor certain types of school districts;

3. trends in the use of local non-property taxes;

4. equalization effect of federal programs of school support; and

5. extent of equalization achieved by existing state support programs.

The results of these studies will be used to assist in conceptualizing and formulating models of school finance.

Concurrent with these satellite projects the central staff will examine support programs for pupil transportation, particularly the transportation needs of pupils in urban areas, and current provisions for financing retirement programs for public school personnel. In addition, three background papers will be prepared. The first will provide general economic projections and revenue estimates, a discussion of the role of education in the economy, and an analysis of the various tax sources from which revenue for the support of education might be obtained. The second will examine the financial implications of the adoption of collective bargaining or professional negotiation procedures in education. The third will explore the implications for financing education of private sector activity in education — for example, the cost of contracting certain service activities such as transportation and feeding or of certain instructional activities such as behind-the-wheel instruction for driver education, as well as the cost of providing various types of aid, such as textbooks, for pupils attending private schools.

Analysis of Educational Finance Models

Phase IV, which culminates the project, requires the integration and synthesis of knowledge and insights acquired in the preceding phases to conceptualize, develop and test educational finance models which will harness the fiscal resources of local school districts, states, and the federal government so as adequately to fund the educational programs needed to serve the diverse needs of all citizens. It is *not* the objective of this phase of the project to identify a single "best" model for financing education. Rather, the objective is to test several feasible models against a common set of criteria so that policy-makers may be cognizant of the explicit strengths and weaknesses of various models as they consider alternative models of school support. In conducting the consequential analysis of each educational support model, answers will be sought to such questions as:

1. To what extent will the model enable every child to have access to an educational program which will facilitate maximum development of his human potential, i.e., to achieve equalization of educational opportunity defined in terms of meeting varying individual needs?

2. To what extent will the model provide for equity among taxpayers in distributing the financial burden of supporting education (and other local governmental services)?

3. To what extent will the model provide for equitable treatment of local school districts of widely varying socioeconomic, demographic and geographic characteristics, e.g., densely populated urban areas and sparsely populated rural areas?

4. To what extent will the model encourage efficiency in the use of the resources allocated to education?

5. To what extent will the model stimulate or inhibit experimentation and innovation in the schools?

6. What effect will the model have on the locus and quality of various types of educational decisions, e.g., curriculum, personnel, facilities and the like?

The specific models to be tested cannot be identified at this juncture, since the data developed in Phase II and Phase III will strongly influence the models which are identified and analyzed. However, it is anticipated that several of the educational finance models currently in use in the various states will be subjected to analysis. These would include such models as the Strayer-Haig and the Morphet-Johns foundation program models; incentive models employing procedures advocated by Updegraff such as are now in use in Wisconsin and Rhode Island; flat grant models; and models utilizing both general and categorical aid. It should be emphasized that the above listing is illustrative, not exhaustive; that other models now extant, proposed, or yet to be devised will also be tested.

Computer programs will be written for each of the educational finance models to be tested and simulation procedures will be employed to test each model. A number of hypothetical school districts will be constructed to reflect the various program and fiscal variables identified and quantified in Phase II and Phase III. These hypothetical school districts will be employed to demonstrate the effect of various educational finance models on school districts having varying economic and demographic characteristics. The computer programs for the various educational finance models will be available for use by individual states who wish to analyze the effects of the adoption of various models on school districts in their state.

Conceptually, educational finance models can be viewed as consisting of two distinct, though interrelated components — revenue models and allocation models. Some of the primary decisions which are required in order to implement any model for financing education are illustrated in Figure 3. Implicit in practically all revenue models currently employed in educational finance programs is the notion of a state-local partnership in which a significant portion of the total revenue is derived from locally levied taxes, primarily taxes on property. Embedded in each revenue model is a value judgment, arrived at through the political process, concerning the share of revenue which should be provided by each "partner" — the state and the local school district. In recent years a third "partner", the federal government, has become increasingly active in financing education, although debate concerning the propriety of the new partner's involvement has not completely abated. Thus, several possible revenue models will need to be considered in Phase IV. These include, for example, the possible use at the federal level of revenue sharing, block grants, categorical aid, or some combination of each. At the state-local level, the possibility of complete state financing must be considered, as well as the possible use of local non-property taxes, either levied and collected locally or as supplements to taxes levied and collected by the state. It is anticipated that several revenue models will be subjected to consequential analysis.

Turning to allocation models, most educational finance models currently in use purport to base the distribution of funds to local districts on their educational need *vis a vis* their ability to meet their need. Typically, distribution models deal with

Figure 3

An Illustration of Some
Primary Decisions Required to Implement an
Educational Finance Model

Revenue Dimension Decision / Allocation Dimension Decisions	Whether or Not to Levy Given Tax	Extent to Which Taxes Will be State or Local	Rates to be Applied on Each Tax
Measure of Educational Need to be Employed			
Programs to be Offered			
Application of Unit Costs to Program Elements			
Fiscal Ability And Effort			

educational need in terms of such variables as pupils (weighted or unweighted), classroom units, miles transported, and the like. Allocation models may consist of general aid for all or most school purposes, categorical aid for specific purposes, or a combination thereof. They may provide the same number of dollars for each pupil or differentiated amounts based on various categories of pupils (e.g., elementary and secondary). They may require matching contributions by local districts with or without regard to their fiscal capacity or they may be provided without regard to local contribution. Thus, several allocation models will need to be considered and subjected to consequential analysis.